U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

MEMORANDUM FOR: All NWS Regional Headquarters, Regional Maintenance Specialists, Electronic Systems Analysts, and Electronics Technicians [Engineering Handbook (EHB)-13, Series II distribution]

FROM: W/OPS1 - John McNulty for Mark S. Paese

SUBJECT: Transmittal Memorandum for EHB-13 Series II, Issuance 01-16

1. Material Transmitted:

Engineering Handbook No. 13 Series II, Advanced Weather Interactive Processing System (AWIPS), section 5.1, AWIPS System Modification Note 2, Linux Workstation Installation.

2. Summary:

AWIPS System Modification Note 2 provides hardware and software installation instructions in support of the Linux port project Operational Demonstration held during the May-July, 2001 time frame. The site ESA will install and configure the Linux workstations to augment two of the existing HP workstations.

3. Effect on Other Instructions:

None. File this note in EHB-13, Series II, Section 5.1.

AWIPS SYSTEM MODIFICATION NOTE 2 (for Electronic Systems Analysts)
Maintenance Logistics & Acquisition Division
W/OST: CP
W/OPS12: FJZ

SUBJECT : Linux Workstation Installation

PURPOSE : To provide hardware and software installation instructions for two Linux workstations.

AUTHORIZATION : The authority for this patch modification note is Request for Change NWS 673

EQUIPMENT AFFECTED : Advanced Weather Interactive Processing System (AWIPS) HP workstations at the sites listed in attachment A

SITES AFFECTED : See attachment A

PARTS REQUIRED : All required parts will be shipped to the site.

Shipment 1

- This modification note with attachments
  - AWIPS Build 5.1.1 Linux D2D Software Release Notes
  - GFESuite Linux Release Notes
- 2 - 10/100 BaseT LAN cable
- AWIPS software installation CD

Shipment 2

- Dell Linux machine
- Monitor
- Keyboard
- Mouse
- Dell Image Restore CD set

MODIFICATION PROCUREMENT : None

TOOLS REQUIRED : Standard site tool kit

TEST EQUIPMENT REQUIRED : None

EFFECT ON OTHER: INSTRUCTIONS None. File this note in EHB-13, Series II, section 5.1.

VERIFICATION STATEMENT : This modification was tested at the National Weather Service Headquarters NMTW, Silver Spring, MD (SLVM2).

TIME REQUIRED 2 hours

GENERAL

This modification note provides Linux workstation and software installation instructions in support of the Linux port project Operational Demonstration held during the May-July, 2001 time frame. The purpose of the demonstration is to provide information on the AWIPS Linux workstation installation process and operational performance. In addition, the demonstration will provide NWS management with performance data on the AWIPS Linux workstation in routine operational use at 15 offices (11 WFOs, 2 RFCs, 1 Regional Headquarters, and 1 National Center) during a 60-90 day period.

The site ESA will install and configure the Linux workstations to augment two of the existing HP workstations. The purpose of the "Augmented Workstation Configuration" is to connect the Linux workstation into the operational forecast environment with minimal system impact. The AWIPS Workstation Configuration before and after "Augmentation" is shown in figures 1 and 2 below. At the present time, certain workstation functions such as SCAN, WWA, WHFS, and NWS RFS are not supported on the Linux workstations but are planned for future software revisions.

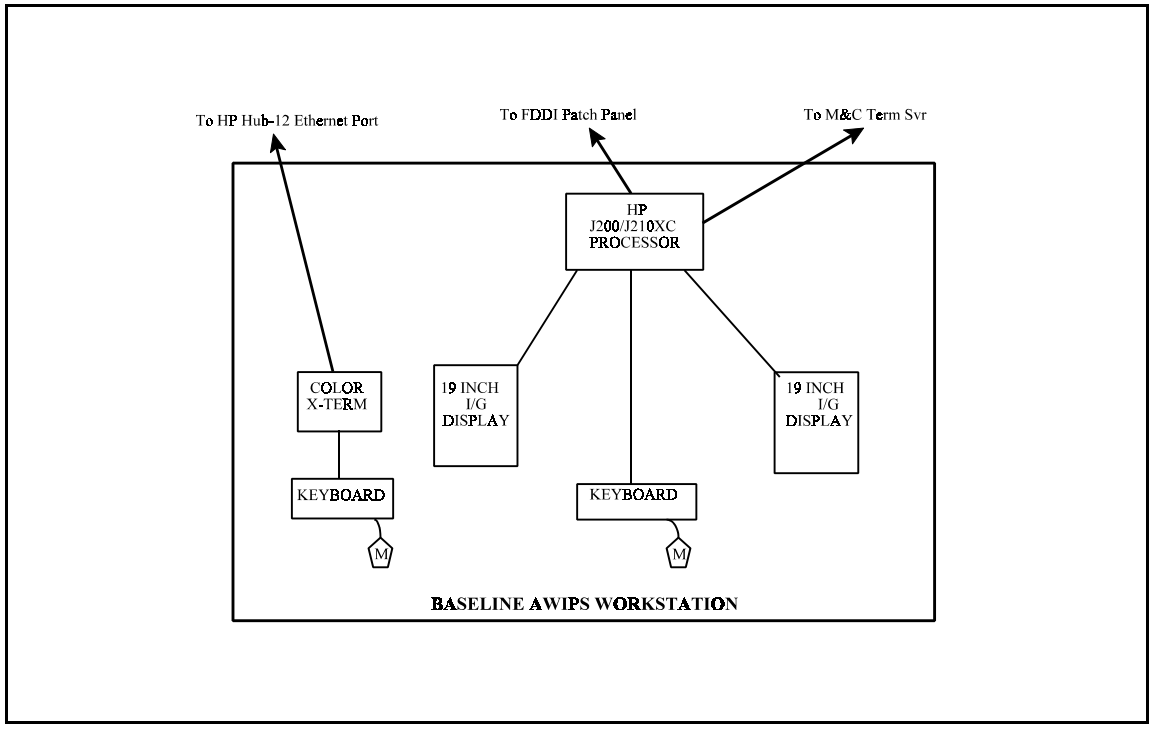

Figure 1: AWIPS workstation configuration **before** Linux augmentation

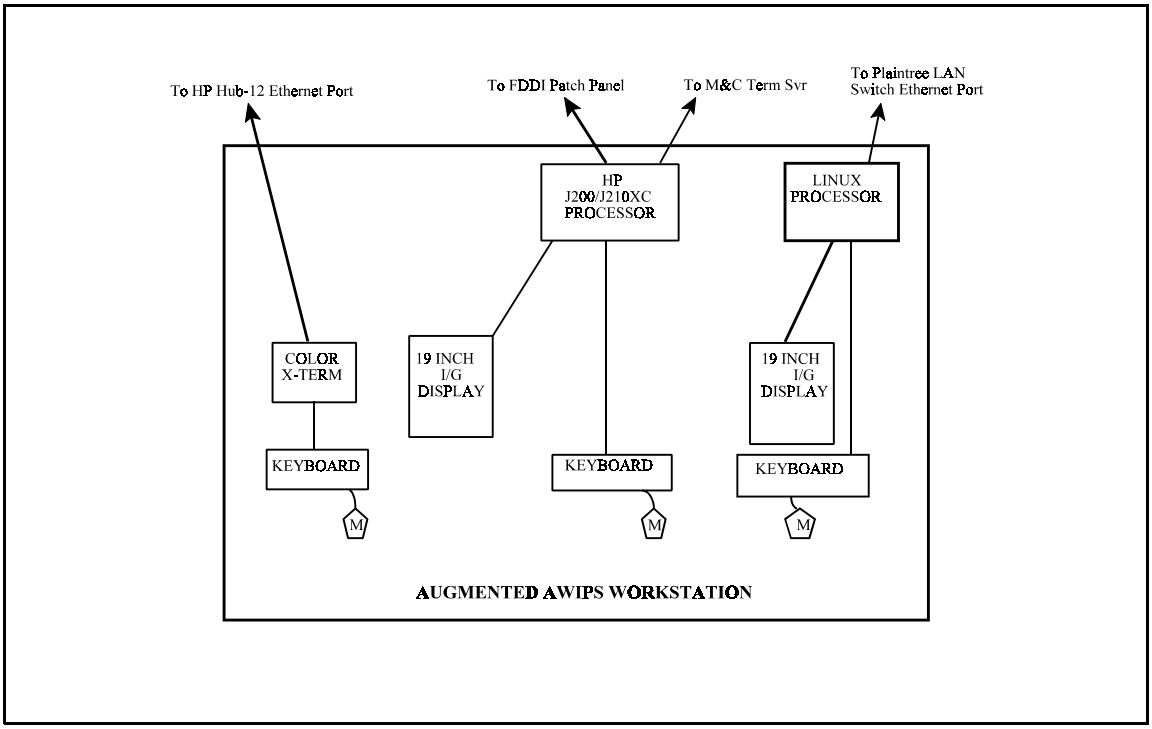

Figure 2: AWIPS workstation configuration **after** Linux augmentation

Affected sites listed in attachment A will receive two shipments. The first shipment contains this modification note, a 10/100 BaseT LAN cable, the AWIPS software installation CD, and release notes. The second, is dropped shipped directly from the Dell factory and contains the Dell Linux machine, monitor, keyboard, mouse, and a Dell Image Restore CD set. The Image Restore CD enables sites to restore a disk image to the Linux workstation. The workstations are preconfigured by the Office of Systems and Technology with Red Hat version 7.0 Linux operating system, operating system patches, Matrox video card drivers, and the required disk partitions for the AWIPS software.

PROCEDURE

I. Hardware Installation Procedure

A. Linux Workstation 1 Installation Procedure

1. Based on the site's workstation usage, identify the two AWIPS Hewlett-Packard (HP) workstations to be augmented by the two new Linux workstations.

2. Unpack the Dell Linux workstations.

3. At the HP workstation to be augmented, remove one of the HP graphics monitors and place the monitor in storage for the remainder of the operational demo. In the event of a Linux workstation failure, it may be necessary to reinstall the HP monitor to restore the augmented HP workstation to full functionality.

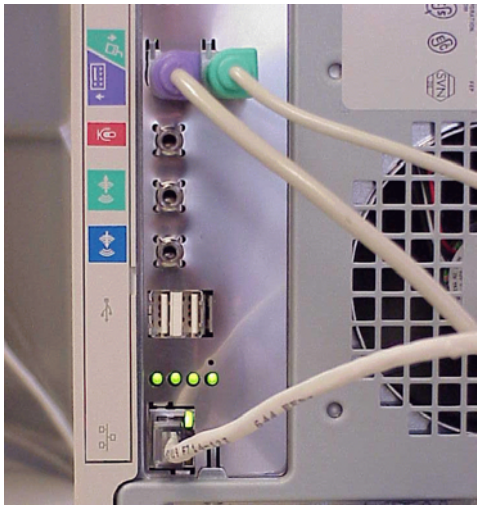

Figure 3

4. Place the new Dell monitor in place of the removed HP monitor. Also place the new Dell keyboard and mouse on the table in front of the new Dell monitor. Label the new Dell monitor with the hostname "lx1-xxx" where xxx is the site ID.

5. Place the new Dell CPU on the floor near the existing HP workstation CPU. Connect the keyboard, and mouse to the back of the Dell CPU (figure 3). (These connections are color coded to help you identify the proper port on the back of the CPU for each cable connection.) Connect the Dell CPU power to an existing power distribution circuit near the unit.

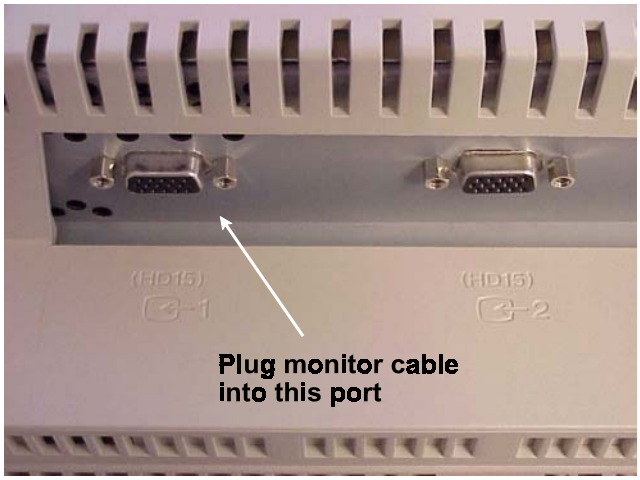

Figure 4

6. Locate the monitor video cable. At the back of the monitor, locate the port labeled HD-15 (1). Plug either end of the monitor video cable into port HD-15 (1) (figure 4).

7. At the back of the CPU, locate the Matrox video board. Identify port 1 on the video board. Plug the other end of the monitor video cable into port 1 [figure 5 (disregard masking tape labels on figure 5. Delivered CPUs will not have labels).

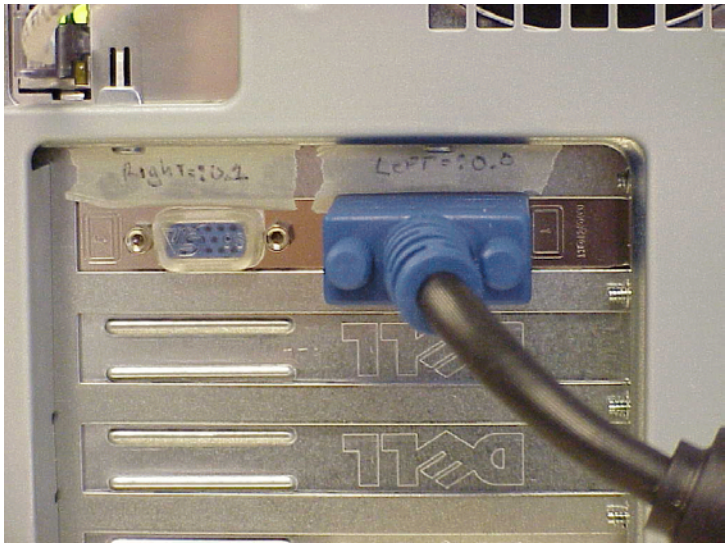

Figure 5

8. At the front of the monitor, ensure the monitor input switch setting is set to position “1" (figure 6).

9. Connect the 10/100 BaseT LAN cable, shipped with the modification note into the RJ-45 10/100 BaseT port on the Dell machine (figure 3).

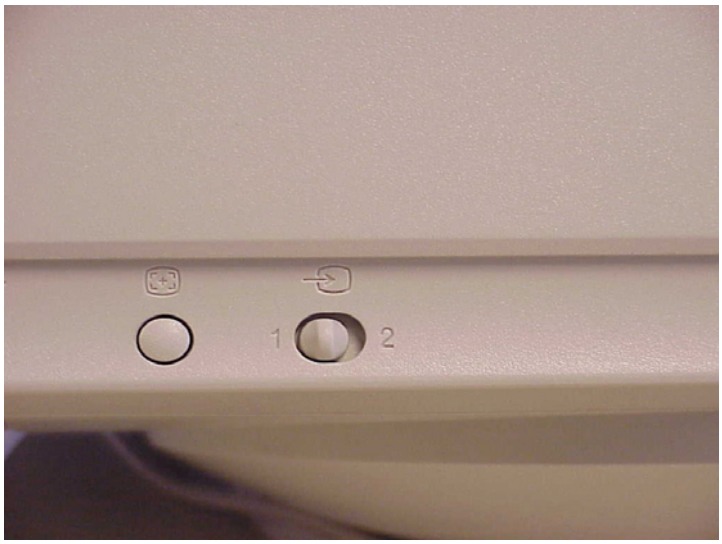

Figure 6

10. Run the LAN cable under the raised floor and plug the other end into port 4 of PlainTree LAN switch 1.

This completes the first Linux workstation installation procedure. Continue with part B to install the second Linux workstation.

B. Linux Workstation 2 Installation Procedure

1. Identify the second AWIPS HP workstation to be augmented with the second Linux workstation.

2. Repeat step 3-10 in part A to install the second Linux workstation.

3. Label the second Dell monitor with the hostname “lx2-xxx” where xxx is the site ID.

4. Plug the LAN cable for the second Dell machine into the RJ-45 port 4 on PlainTree Hub 2.

5. Power up the Linux CPU and monitor and verify it properly boots up.

This completes the second workstation installation procedure. Continue with section II for the software preinstallation procedure.

II. Software Installation Procedure

A. Preinstallation Requirements

The procedures below provide instructions for configuring the AWIPS Linux workstation and installing the AWIPS R5.1.1-L D2D Linux version, “WARNGEN,” and “NWS1-6" of “GFESuite.”

NOTE: Read the entire document before beginning the installation on your LINUX workstations.

1. Prior to configuring the Linux workstations, become familiar with the systems by reviewing the following steps. It may be necessary to record the information so that it can be referenced in the next sections.

   a. The hostname site id is required in part B step 10b. This will be used to set the Linux hostname. It must be entered in lowercase.

      Example: If the ds1 hostname is “ds1-abq”, then the “hostname site id” is abq.

   b. Obtain the fxa localization site ID for step 16 and 17 by logging in to the augmented HP workstation as user **fxa** and typing:

      `echo $FXA_LOCAL_SITE`

NOTE: Obtain and record the fxa localization site ID on each of the two augmented HP workstations. The appropriate fxa localization site ID must then be used for lx1 and lx2.

c. Obtain the ds1 IP address for step 10c by logging in to ds1 and typing:

`grep ds1-<siteid> /etc/hosts`

Where **`<siteid>`** is the hostname site ID

d. Remain logged in to ds1 and obtain the default gateway IP address for step 10d by typing:

`grep "ROUTE_GATEWAY\[0\]" /etc/rc.config.d/netconf`

e. The sample script log output files are found on the cd in the "/mnt/cdrom/script-output" directory. A hard copy is not included with this modification note. Use the sample script output files to verify the messages displayed during the installation.

NOTE: 1. **DO NOT** use <CTL-C> to stop the installation script.

2. Do not proceed if unexpected problems are encountered. Before taking action, contact the NCF immediately at 301-713-9344.

This completes the preinstallation requirements. Continue with part B for the AWIPS R5.1.1 Linux workstation installation procedures

B. AWIPS R5.1.1 Linux Workstation Installation Procedures

NOTE: 1. The estimated installation time for lx1 is 45 minutes to 1 hour
The estimated installation time for lx2 is 30 to 45 minutes

2. Perform the software installation procedure on lx1 first, then repeat the procedure for lx2.

1. Before installing AWIPS R5.1.1-L on the Linux workstations, call the NCF at 301-713-9344.

2. Log into the Linux workstation as **`root`** with password **`root`**.

3. Open a terminal window and change the root password to the root password used on AWIPS. At the prompt, type **passwd** to change the root password:

   ```
   prompt> passwd
   ```

4. Create a directory by typing:

   ```
   mkdir /local/install
   ```

5. Mount the Linux Configuration/AWIPS CD by placing it into the CD drive.

6. Wait for the **/mnt/cdrom** window to appear. Close it by selecting **File** then **Close Window**.

7. Open a terminal window and install the Red Hat security errata script. (Note, ignore the three messages referring to nonempty directories in "/usr/src/redhat.") The script will take approximately 1-3 minutes. Type the following:

   ```
   script -a /local/install/install-rpm.out
   cd /mnt/cdrom
   ./install-rpm.sh
   ```

8. Once the script is complete, a message "`done running install-rpm.sh`" will display. Exit the script by typing:

   ```
   exit
   ```

9. Access the "install-rpm.out" script file for errors by typing:

   ```
   /mnt/cdrom/error-check.sh install-rpm.out
   ```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

10. Run the next script to configure the network by typing:

    ```
    script -a /local/install/config-network.out
    cd /mnt/cdrom
    ./config-network.sh
    ```

11. The script will display five questions. Answer them as follows:

.

a. `Enter your Linux workstation number [1 or 2].`
`-- If this is your first Linux workstation, enter 1`
`-- If this is your second Linux workstation, enter 2`
`Enter 1 or 2 now:`

Answer **1** for lx1 or **2** for lx2

b. `Enter your AWIPS site id.`
`-- Example: if your DS1 hostname is 'ds1-abq',`
`you would enter --> abq <-- as your site id.`
`Enter your site id now:`

Answer in lower case, for example: **nmtw**

c. `Enter the IP address of your DS1:`

Example: **165.92.20.5**

d. `Enter the IP address of your default gateway:`

Example: **165.92.20.70**

e. A list of entries will appear on the screen, then the question "`Are these entries correct? [y/n].`" Before answering **y**, write down the host IP address.

f. When the message "`done running config-network.sh`" is displayed, type:

exit

g. Access the "config-network.out" script file for errors by typing:

/mnt/cdrom/error-check.sh config-network.out

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

12. Perform the following configuration procedure for **lx1 only**.

NOTE: Perform step 12 for lx1 only. If configuring lx2, skip to step 13.

a. After the "config-network.sh" script has completed successfully (step 11 above), perform the following steps:

(1) Start a script output by typing:

```
script -a /local/install/config-rcommands.out
```

(2) As **root**, perform the following commands (ignore messages referring to Kerberos authentication when performing the ftp command):

```
cd /local/install
ftp ds1   (login as awipsusr)
ftp> cd /tmp
ftp> put config-rcommands.sh
ftp> dir config-rcommands.sh (To verify config-rcommands.sh is
                              now in "/tmp" directory on ds1)
ftp> quit

telnet ds1 (login as awipsusr)
su -
cd /tmp
chmod 500 config-rcommands.sh
./config-rcommands.sh
```

(3) When the "config-rcommands.sh" script is complete, remove this script by typing:

```
rm config-rcommands.sh
```

(4) Exit **root** user and **awipsusr** by typing:

```
exit
exit
```

(5) After exiting, change directory, remove the script from the Linux workstation, and exit to save the script output by typing:

```
cd /local/install
rm -f config-rcommands.sh
exit
```

(6) Access the "config-rcommands.out" script file for errors by typing:

```
/mnt/cdrom/error-check.sh config-rcommands.out
```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

13. Run the following script to configure the remainder of the system. This script will take approximately one minute to run.

a. To run the script type:

```
script -a /local/install/config-system.out
cd /mnt/cdrom
./config-system.sh
```

NOTE: The monitor may flash and darken when the system clock is reset during script execution. If this occurs, press the Enter key to allow the script to continue. (This may not happen at all installations).

b. Once the script is complete, the following message is displayed:

```
done running config-system.sh...
```

c. After the script ends, type:

```
exit
```

d. Access the "config-system.out" script file for errors by typing:

```
/mnt/cdrom/error-check.sh config-system.out
```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

14. Reboot the Linux workstation and observe the messages for errors. To reboot type:

    reboot

NOTE: Ignore "FAILED" messages as the system shuts down.

15. When the system is powering back up, observe the "OK" messages as each item is started on boot-up. If a "FAILED" message appears, call the NCF at 301-713-9344. If all start-up messages show "OK," proceed to the next step.

NOTE: Near the start of system boot-up, ignore the message: “Time-of-day not set.” The time of day will be set in step 16b.

16. Run the script to install WFOA

    a. At the Red Hat login prompt, log in as **root** with the AWIPS root password established in part B step 3.

    b. In a terminal window, enter the following commands to start the script output log and mount the cd rom:

    ```
    script -a /local/install/install-wfoa.out
    setclock
    mount /mnt/cdrom
    ```

    c. Wait for the **/mnt/cdrom** window to appear. Close it by selecting **File** then **Close Window**.

    d. Change directory by typing:

    ```
    cd /mnt/cdrom
    ```

e. The script will ask for the "fxa localization site ID" and the "HP workstation number." The workstation number refers to the HP workstation being augmented with the Linux workstation. Enter only the number (i.e. for ws3 enter **3**).

f. Run the install script by typing:

./install-wfoa.sh

NOTE: For step g(1), enter the fxa localization site ID for the augmented workstation acquired in part A step 1b. Localization will fail If the incorrect fxa localization ID is entered.

g. Answer the following questions:

(1)
```
Enter your fxa localization site id (site id used in
localization).
-  Examples:  BOU, LWX, etc.
(If your fxa site id is NMTW, then simply hit the Enter key.)
Enter your fxa site id now:
```

(2)
```
Which HP workstation are you augmenting with this
Linux workstation?
-- Example: enter 3, if you are augmenting your ws3
HP workstation.
Enter this integer now:
```

h. When the message "`done running install-wfoa.sh...,`" appears, type:

exit

i. Access the "install-wfoa.out" script file for errors by typing:

/mnt/cdrom/error-check.sh install-wfoa.out

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

17. Run the script to install GFESuite. The script will take approximately 5 minutes to run.

a. When queried by the “install-gfe.sh” script, hit **Enter** to select default values. The default values are as follows:

Query	Default Value
Installation Directory	/awips/GFESuite
Site ID	the ID used in the hostname
IFPServer RPC port number	98000000
IFPServer RPC host	lx1-<siteid>

NOTE: If a site requires to enter a site ID other than the default site ID, enter the site ID in capital letters.

The default “Site ID” is the site ID used in the hostname. Enter the site ID used in localization (part A step 1b). Hit **Enter** to accept the default site ID only if the value is the localization site ID (in most cases it will be).

b. To start the log file and execute the script type:

```
script -a /local/install/install-gfe.out
cd /mnt/cdrom
./install-gfe.sh
```

c. Answer the following questions (hit **Enter** to accept default values):

(1) `Installation directory [/awips/GFESuite]:`

(2) `You may need to change the site id if it was not picked up from an old installation`
`Site ID [NMTW]:`

Enter the site ID acquired in part A step 1b.

`The next two items identify the machine and port where the IFP Server is to be run. The defaults for these are probably what you want.`

(3) `IFPS Server RPC port [98000000]:`

(4) `IFPS Server RPC host [lx1-nmtw]:`

d. When the message "`done running install-gfe.sh...,`" is displayed type:

`exit`

e. Access the "install-gfe.out" script file for errors by typing:

`/mnt/cdrom/error-check.sh install-gfe.out`

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

18. Unmount the CD by typing:

```
cd /
umount /mnt/cdrom
```

19. If the "umount" command fails, type:

```
fuser -k /mnt/cdrom
umount /mnt/cdrom
```

20. Remove CDROM from the CD carriage.

This completes the AWIPS R5.1.1 Linux workstation installation procedures

C. Post Installation Procedure

1. Run D-2D or GFESuite by performing the following procedure:

   a. Log out and then log back in as **`awipsusr`**.

      (1) To log out, select the Gnome footprint in the lower-left corner of the screen select **Log out**.

(2) The Gnome display manager occasionally hangs when logging out. If this happens, rlogin to the affected Linux workstation from another workstation on the LAN and perform the following steps as **`root`** user:

```
ps aux | grep -v grep | grep "/usr/bin/gdm"
```

(3) kill all the processes shown by issuing the kill command on the process id(s) listed in the second column. This will restart Gnome and permit logins.

b. At the login screen, log in as **`awipsusr`**.

NOTE: 1. The D-2D and GFESuite should only be run while logged in as awipsusr.

2. The GFESuite is enabled 10 - 15 minutes after the installation. Clicking on the GFE icon immediately after the installation will cause a GFESuite program execution delay of approximately 3 - 5 minutes.

c. Use the D-2D and GFESuite icons in the upper left hand corner of the screen to start D-2D and GFESuite. Observe the Gnome panel is now vertical and placed along the left hand side of the screen. The Gnome footprint is in the upper left hand corner of the screen at the top of the Gnome panel. Select the footprint to log out.

NOTE: 1. If only one monitor is attached to the Linux workstation, only the "D-2D L" icon will be functional for starting D-2D on the monitor. "D-2D L" represents D-2D on a left monitor, and "D-2D R" represents D-2D on a right monitor. If two monitors are attached to the Linux video card, modify the D-2D startup script "god2d" in the “/awips/fxa/bin” directory to permit D-2D displays on both monitors. See the “god2d” script for instructions. **Do not change the "god2d" script when using one monitor.**

2. When logged in as root, awipsusr, and/or fxa, the default path places the “/usr/bin” ahead of “/usr/kerberos/bin” directory, in effect, avoiding the use of the kerberos versions of rsh, rlogin, etc. If problems occur when using r-commands logged into the Linux workstation as anything other than root, awipsusr, and/or fxa (i.e., a non-awips account), change the path so that the “/usr/bin” is searched before “/usr/kerberos/bin” directory.

REPORTING MODIFICATION

Report the completed modification on a WS Form A-26, Maintenance Record according to instructions in Engineering Handbook 4 (EHB-4), Engineering Management Reporting System (EMRS), Part 2, and appendix I. A sample A-26 form is attached. As an additional guide, use the information in the table below.

Block #	Block Type	Information
5	Description	All set up and installation activities associated with AWIPS System Modification Note 2 and AWIPS Linux Workstation Demonstration Plan.
7	Equipment Code	AWIPS
8	Serial Number	001
15	Comments	Installed hardware and software associated with AWIPS Linux workstations I.A.W. AWIPS System Mod Note 2.
17a	Mod. No.	2

for John McNulty
Chief, Maintenance, Logistics, and Acquisition Division

Attachment A - Affected Site List
Attachment B - WS Form A-26 Sample
Attachment C - AWIPS Build 5.1.1 Linux D2D Software Release Notes
Attachment D - GFESuite Linux Release Notes

Attachment A

Site	SID	Region
WFO Tulsa, OK	TSA	Southern
WFO Tampa, FL	TBW	Southern
WFO Wilmington, OH	ILN	Eastern
WFO Taunton, MA	BOX	Eastern
WFO Pleasant Hill, MO	EAX	Central
RFC Missouri Basin, MO	KRF	Central
WFO Wichita, KS	ICT	Central
WFO Boise, ID	BOI	Western
WFO Sacramento, CA	STO	Western
*WRHQ Salt Lake City, UT	VHW	Western
WFO Juneau, AK	AJK	Alaskan
RFC Anchorage, AK	AFC	Alaskan
WFO Honolulu, HI	HFO	Pacific
WFO GUAM	GUM	Pacific
Storm Prediction Center	SPC	NCEP
WFO Medford, OR	MFR	Western
WFO Eureka, CA	EKA	Western
WFO Reno, NV	REV	Western
WFO Omaha, NE	OAX	Central
WFO Topeka, KS	TOP	Central
WFO Springfield, MO	SGF	Central
WFO Jackson, KY	JKL	Central
WFO Oklahoma City, OK	OUN	Southern
WFO Knoxville, TN	MRX	Southern
WFO Atlanta, GA	FFC	Southern
WFO Charleston, WV	RLX	Eastern
WFO Roanoke, VA	RNK	Eastern
WFO Greenville, SC	GSP	Eastern

* NO HARDWARE- SOFTWARE ONLY

Attachment B

WS FORM A-26 (4/94)

WS FORM A-26 (4/94)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

ENGINEERING MANAGEMENT REPORTING SYSTEM
MAINTENANCE RECORD

Document Number: **G 49978**

General Information	1. Open Date	Time	2. Initials	3. Response Priority (check one)	4. Close Date	Time
	4 / 30 / 01	0900	JMM	○ Immediate ○ Low ○ Routine ⊗ Not Applicable	4 / 30 / 01	1100

5. Description: **All set up and installation activities associated with AWIPS System Modification Note 2 and AWIPS Linux Workstation Demonstration Plan.**

Equipment Information	6. Station ID	7. Equipment Code	8. Serial Number	9. TM	10. AT	11. How Mal.
	EAX	AWIPS	001	M	M	999

12. *EQUIPMENT OPERATIONAL STATUS TIMES*	a. Fully Operational	b. Logistics Delay	Partly Operational	c. All Other	d. Logistics Delay	Not Operational	e. All Other

13. *Parts Failure Information*

Block #	a. ASN	b. NSN	c. TM	d. AT	e. How Mal.	f. Qty.	g. Maint. Hrs.
1							
2							
3							
4							
5							

14. *Work Load Information*

Type	Staff Hrs.
a. Routine	
b. Non-routine	
c. Travel	
d. Misc.	2:00
e. Overtime	

Miscellaneous Information	15. Maintenance Comments	16. Initials
	Serial Number Linux Workstation 1: _____ Serial Number Linux Workstation 2: _____	JMM

17. *SPECIAL PURPOSE REPORTING*	a. Mod. No.	b. Mod./Act./Deact.Date	c.	d.	e.
	2	4/30/01			

18. *CONFIGURATION MGMT. REPORTING* (use as directed)	ASN	Vendor Part Number (New Part)	Serial Number (Old Part)	Serial Number (New Part)

Attachment C

AWIPS Build 5.1.1 Linux D2D Software Release Notes

These are changes from Build 5.0.

Note: These notes describe features of the D-2D software that runs on the demonstration Linux workstations. The Linux D-2D software is Build 5.1.1, while the AWIPS database is at 5.0. Linux versions of non-D-2D features such as SCAN, FFMP, and WWA, and some D-2D items like Product Maker are not yet available; in most cases, these have been removed from the menu.

Infrastructure

- A new localization may now be created only by the fxa user.
- Modifications to logStream allow collective logging - for example, multiple runs of one program can log to a single file.
- Desktop icons are used to start D2D and GFE. See Section C of the Mod Note for details on how to start D-2D and GFE from the Gnome desktop.

Graphics/image workstation

New features

- When using a procedure or the history list, at load time for a bundle you can set a different model or radar for a dataset. This is effected through the **Alter...** dialog, from which you can select an alternate radar or grid, or select different options for use of points and baselines.
- A new **Copy In** button is added to the procedure dialog. This will place the current contents of the display in the procedure. Keyboard accelerator ctrl-b is still available, as before.
- A new control is added to the Options menu replacing the old **Time Resolution** option. When selected, this **Time Options** button (keyboard accelerator ctrl-t) produces a dialog box through which you can control time matching functions.
- If loading to an empty display, you select the time of the last frame, and the time resolution. For example, at 1420Z, you can select METAR plots every 3 hours ending at 12Z. The dialog box shows exactly which datasets will be loaded. This provides a means to deal with a situation of more than 32 frames of data available.

- If loading to a display already containing data, you select an offset time and tolerance. For example, selecting a -2 hour offset will overlay data from two hours before each frame. In the above case, the last frame would be 10Z, the previous 07Z, etc. "Tolerance" refers to how strict the time matching is. "none" means an exact match is required, while "infinite" will put the closest match in each frame, regardless of how far off it is.
- Also added to the Options menu is a new **Data Scale** button, with keyboard accelerator ctrl-s. When enabled, this option displays data on its native scale. For example, if you enable data scaling and select a product from an alternate radar, it will display with that radar at the center of the screen. Other data will overlay on this "dynamic" scale until the screen is cleared or a non-plan-view product is selected.
- Menus for QPF, FFG, and QPE images from the various RFCs are in the Hydro area of the Surface menu, as are some snow products from NOHRSC. The data to support these displays are not available in 5.0.
  Note: After your HP system is upgraded to 5.1.1, these products will become available. At that time, an error in the code may manifest itself if you use these images frequently, especially if you leave them on the display and they auto-update repeatedly. If so, and the display is not restarted for several days, it may crash or otherwise become unhappy.
- Radar items:
  - The radar mosaics now work a little differently. First, the radars composing the mosaic are no longer always automatically the set of radars that are in radarsOnMenu.txt. The number of radars in any mosaic is limited to the closest nine. Most importantly, however, is that there is now an option to supply a table to control which radars are in the mosaic, and allow mosaics of more than one set of radars.
  - The radar announcer now logs receipt of a Free Text Message.

Improvements

- The process of loading bundles from procedures is slightly modified. Now, when you first open a procedure, no bundle is highlighted. A new button, **First**, will highlight and load the first bundle. That button then changes to **Next**, and it will move to the next bundle and load it. The old **Load** button still exists, and will load the highlighted bundle, but not move to the next. The point of this is to have the highlighted bundle represent what is currently in the display.
- Image attributes of four-panel displays can be controlled together or by each individual panel. The panel to be controlled is selected by a pop-up menu.
- It is now possible to edit and blink 24 bit combo images.
- The map backgrounds menu now includes a netCDF-based spotters map (called Spotters Readout on the menu). It is set up by -station localization, based on information in spotters.dat. A sample spotters.dat is found in /data/fxa/nationalData, illustrating the format.

- You now have a choice when loading bundles that use points or baselines. You can display the data either at the current location of the tool (the default), or where it was located at the time the bundle was stored. (As a bonus, the problem with time series graphics and image not matching has been resolved.)
- Volume Browser:
  - You can store difference fields in procedures.
- Radar items:
  - The way all-tilts displays updates has been changed. Now, you see each scan of the volume as it arrives.
  - The VR shear annotation now includes mean distance from the RDA.
  - You are now notified when a one-time or alert request product arrives from the RPG.
  - Menu item User Def Total Precip now reads User Selectable Precip (USP).
- Radar archive:
  - A new interface allows you to delete a store session.
- WarnGen items:
  - The initial number of vertices for a line of storms is now configurable. The value is specified in wwa.config (created from nationalData/wwaConfig.template or a locally-customized version) using warngenDefaultLineVertex.count.
  - To see the areas used by warnGen (cities, counties, zones, CWAs), select from the **Maps**>**Warngen Tables**> menu.
  - (Please note that the **To WWA** button on the warnGen menu has been removed, since a Linux version of that function is not available.)

Linux-specific bugs and notes

- Some of the labels are misplaced on fire weather graphics.
- As usual, procedures are shared among all AWIPS workstations. 5.1.1 (Linux) bundles, however, are not backward compatible with 5.0 (HP) workstations. Do not attempt to display any Linux-stored procedure items on an HP workstation - your IGC process will crash. Your best bet is to just continue making procedures on your HPs. To do anything Linux-specific, either Save As... or create a new procedure with a Linux-tagged name of some sort.
- You can open a text window on the Linux workstation, but there is no Linux text workstation, per se. The workstation will be configured to direct warnGen output to an appropriate text display.
- In order to print from the Linux box, the printer queues will have to be enabled to talk to your office printers.
- Due to differences in the Linux display architecture (24-bit vice 8-bit images, particularly), the behavior of some functions differs. One difference is that fading between combined images and dimming images is considerably slower on the Linux workstation. On the other hand, all image combinations are 8+8 bits, so you don't lose dynamic resolution when you combine images. Changing color tables is also noticably slower, and if you do so on a non-animating display, you'll notice the pie cursor come on to track the progress.
- The MDL provided capability to do WWA "intersite coordination" of warnings created in

WarnGen does not work on the Linux workstation. This limitation may affect the capability to have warnings voiced over NOAA Weather Radio at adjacent WFOs for those ER sites that use it.

- There are incompatibilities between the Linux case archive client and the 5.0 HP server. You'll not be able to run radar archive on your 5.1.1 Linux box.
- When using the color wheel in the Linux color editor, unless brightness is 100% (in HSB mode, or one of the colors is at 255 in RGB mode), the swatch and HSB/RGB sliders show incorrect information when the color chooser pointer is in the range 60 to 180 degrees. If you drag through 60 degrees, you'll see the color jump from yellow to blue. The correct color from the wheel is used when an edit is applied.

Attachment D

GFESuite Linux Release Notes

April 23, 2001

Software Version: GFESuite-Linux, internal revision NWS1-6. Similar functionality equivalent of AWIPS 5.1.2 HP-UX.

New in This Release (since AWIPS 5.1.1 IFPS GFESuite)

This section describes features in the GFESuite Linux version that have changed from the official AWIPS 5.1.1 HP-UX GFESuite. Note that this version of GFESuite Linux is close to the functional capability of GFESuite for AWIPS 5.1.2 HP-UX. If you already have AWIPS 5.1.1 GFESuite HP-UX installed on your AWIPS boxes, this section covers changes made since that software version.

New Feature Highlights

- New D2D data sources are now accessible within the GFE.
- ifpAG now supports the transfer of data between grids of differing resolutions.
- An enhanced grid history display has been provided.
- A localMaps.py file may now be used to add site changes to the Maps.py file.
- Various minor enhancements and bug fixes.

Changes to User Interface

Enabled access to MesoEta data by accommodating reuse of model names in D2D directories. *Note: This change requires the source data be accessed from AWIPS 5.1.1 release.*	TRACKING # 738
Loading edit areas can now be accomplished via the main menu.	753
Can now modify color and fonts in the python editor via an override file (specified in the GFE config).	755
Multiple sample selections can now be made at one time with the Load Samples dialog.	761
Samples can now be defined using lat/lon.	766
Edit areas that result from queries now automatically update when the grid data changes.	783
LAPS and MSAS data from D2D is now available within the GFE.	788, 789

A new utility, coordConversion, has been provided to convert between AWIPS coordinates and lat/lon coordinates.	
The origin of each grid is now displayed graphically through the use of color and symbols in the Grid Manager via the new Toggle Grid History button. Additionally, the origin of each grid is provided in the button 3 menu option Display Grid Info.	TRACKING # 234
User is now alerted to the fact that when creating or deleting user defined objects such as edit areas, sample sets, and smart tools, that identically named objects exist in the base- or site-defined sets.	837
A new program, ifpServerStats, now provides a dump of base, site, and user objects. This is a replacement for the information previously being included in server log files.	854

Changes to Configuration Files

serverConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/serverConfiguration.html	TRACKING #
Site domains have been shifted slightly to support IFPS. Grid domains have been adjusted from 35x35 grids to 37x37 grids; documentation on grid resolution has been added.	809, 810
Resolution "factor" has been removed. The default resolution of grid points is now set to 20 km. You will need to create a localConfig file to change this to a different value.	829
D2D directory references (D2Ddirs) have been updated to add LAPS, both MesoEtas, and MSAS.	738, 788, 789
AREAS have been added to the Weather Definition for Freezing Drizzle, Fog, Blowing Snow, and Blowing Dust.	
The localTC() conversion routine for time constraints now expects values in seconds since midnight, previously it expected values in hours since midnight. This may affect your localConfig.py file if you are using the localTC() function.	
gfeConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/gfeConfiguration.html	

Added ability to display no descriptive name (rather than requiring either short name or long name) in ifpIMAGE legend, allowing user freedom to create their own name. Png_descriptiveName may now be set to SHORT, LONG, or OFF.	833
Increased network time-out to 240 seconds.	752
The background color in the GFE's panes and for the ifpIMAGE output has been made configurable with the bgColor setting.	785
SampleLLPlus_color setting has been added to allow the sample indicator marks to be defined independently of the background color.	
ImageLegend_color setting has been added to allow the color used for indicating that a weather element is being displayed as an image to be defined independently of the background color.	
The names of some maps have been changed (see the Maps.py file). This may affect your MapBackgrounds_default entries for both the GFE and the ifpIMAGE program.	
DataState_* has been removed and replaced with a series of History* entries that define the text, pattern, and color of the grid blocks in the Grid Manager when the Grid Manager is toggled into Grid History Mode.	234
Configuration template used to create a user configuration file now has the BASE import statement as an uncommented statement by default.	856
Maps.py Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/mapConfig.html and localMapsConfig.html. It is recommended that you eliminate any copy you have made of Maps.py and placed in /awips/GFESuite/etc/SITE/Maps.py, and use the new localMaps.py technique.	
editAreaName is now comprised of multiple attributes to eliminate duplicate naming of CWAs. The previous format of editAreaName is still accepted.	859
localMaps.py file has been added as the technique to add site changes to the Maps.py file. This allows redefinition of certain maps as well a new maps to be defined. If you have added or modified maps by creating your own customized Maps.py file in a previous release, you will need to incorporate the changed map names in your localMaps.py file.	864
The formatting of Maps.py has been simplified. Please refer to the documentation on the new format.	

The naming of the automatically generated edit areas (defined in Maps.py) has changed for the following maps: CWA Counties, CWA zones.	859
The Large Cities and Cities maps have been combined into a Cities map, which defaults to all cities greater than 50,000 population.	

Other Changes to Appearance and Functioning

Error message now issued when user tries to define a smart tool with an invalid name.	TRACKING # 389
Implicit scrolling within the time scale is now working.	560
When attempting to split or fragment grids that are already at the minimum duration, locks are no longer issued over those time ranges for those grids.	714
A busy ("hourglass") indicator now appears when performing temporal editor modifications.	720
Grid menu operations are now dimmed (indicating disabled) when displaying the temporal editor.	721
Edit areas are now cached in the GFE to improve performance.	749
Only names with valid syntax are accepted in the Edit Area dialog.	772
Spacing and alignment for Wx values in the Set Value dialog have been improved.	775
Python editor font is now mono spaced.	800
Map background menu is now sorted alphabetically.	802
RPP installation procedure has been simplified.	813
The Loop Properties dialog is now non modal, meaning you can perform other operations while the dialog is open.	827
ifpAG now supports the transfer of data between grids of differing resolutions.	
The names of some maps have been changed (see the Maps.py file). This may affect your command line parameters for the ifpIMAGE and ifpGIF programs.	
More options are now available in the Windows menu of the Edit Actions dialog. This allows for more efficient selection of which windows will be displayed within the Edit Actions dialog.	TRACKING # 842

The initial GFE startup screen now lists users and configuration files in alphabetical order (with upper case listed before lower case).	845
Samplers in HistSample now have the standard deviation function: stdDeviation()	862
Training guide documentation has been updated to include new information on grid data history functionality.	863
Databases are no longer deleted during installation if they are compatible with the newest server.	865
Release version number is now part of all executables. This is accessible from the log files, or from the GFE Help menu.	867
Instructions for auto start of ifpServer upon reboot of machine are now provided.	869
Examples of configuration files have been added throughout the documentation, specifically the localMaps, ifpIMAGE, and localConfig documents.	876

Bug Fixes

Wind barbs are now being completely repainted both inside and outside of time range when being assigned new values.	TRACKING # 716
Using the pencil tool with no active weather element now results in a correctly worded error message.	717
Efficiency has been improved when retrieving edit areas via the query dialog.	723
Corrected QPF grids from D2D by taking into account correct grid duration.	747
Only one query dialog can now be invoked at a time.	754
Fixed problem with retrieving incorrect D2D grids when the data inventory was not complete.	769
Pencil tool now works correctly on Wx data.	771
Displayed color bar values for Temperature are no longer off by 1 degree.	774
Unload option on button 3 dialog now appears for modified weather elements in spatial editor legends.	776

Invoking runGFE with only the -u switch no longer causes the user/configuration screen to be bypassed.	784
Adjusting multiple values with one drag within the temporal editor no longer causes a core dump.	794
The GFE no longer crashes after editing with the contour tool.	795
Non-existent and blank names no longer occur within edit area groups that are automatically generated.	798, 799
User is now able to see the currently selected color when using the popup menu over map legends to change the graphic color of the map.	803
Busy cursor no longer remains on after bringing up Edit Action dialog and pressing button 3 over the spatial editor at nearly the same time.	804
Fixed problem with receiving no output from ifpIMAGE when hostname and port were not specified by the user.	805
The position of the Edit Action window no longer drifts up and to the left with subsequent invocations of that window.	807
Fixed problem with the ifpServer being unable to find existing databases when being restarted.	808
GFE no longer crashes when opening or closing the Set Value dialog for Wind.	819
GFE no longer crashes when populating grids of a weather element that has been added to the server from localConfig.py, but doesn't exist in the model databases.	820
A situation in which extraneous locks would remain within a weather element has been corrected.	824
Keyboard shortcuts now work with NUMLOCK on or off.	825
Keyboard focus is now returned to the main GFE window after dialogs are dismissed.	828
Can now save and retrieve a selection time range whose name contains a slash (/).	834
Can now delete MYConfig configuration file.	835
An error resulting from the grid information dialog has been corrected.	836
When changing site IDs on the server, maps now regenerate automatically for the new site.	TRACKING # 316

Certain files were removed from the compiled Python library so that server overrides could be effective.	839
Documentation has been improved describing the use of the pencil tool on Wx data.	840
A weather element removed from the localConfig file no longer continues to appear in the GFE.	846
Wx labels in the spatial editor no longer get partially removed when using the pencil tool.	852
When starting the GFE, the terminal window no longer displays the message "import site failed"	855
Multiple Set Value dialogs can no longer appear.	857
ifpIMAGE is now using polygon writes instead of polyline writes to prevent lines closing upon themselves.	861
Server now detects if any changes have been made to maps and then regenerates edit areas if necessary.	870
Deleted color curves no longer appear (incorrectly) in the Save or Delete lists within the color table editor.	872
Color indicator circle within color wheel of the color table editor no longer disappears after Undo operation.	873
ifpAG now correctly transfers the grid time during input. Prior to this fix, only the first time constraint of data would be transferred when data spanned more than one time constraint area.	892

New in This Release (since AWIPS 5.0 IFPS GFESuite)

This section describes features in the GFESuite Linux version that have changed from the official AWIPS 5.0 HP-UX GFESuite. This list, plus the above section "New In This Release (since AWIPS 5.1.1 IFPS GFESuite)", cover all changes made for GFESuite Linux. If you already have AWIPS 5.0 GFESuite HP-UX installed on your AWIPS boxes, this section, plus the above section, covers changes made since that software version.

New Feature Highlights

- A BASE/SITE/USER concept has been implemented that segregates modifications made by individual users from site-wide modifications, both of which are segregated from base definitions provided by FSL in the distribution software.
- An ifpIMAGE program has replaced the ifpGIF program, allowing more flexibility and ease of use in creating images from gridded data.
- Significant changes have been made to the structure and capabilities of smart tools, including pre- and post-processing, access to soundings and grid information, calls to other tools and scripts, procedure commands, and unit conversion.
- A color table editor has been implemented allowing the user to easily create custom color tables.

Changes to User Interface

Density of contours can now be controlled interactively by using button 3 over the Spatial Editor legend.	TRACKING # 343
Map background colors can now be changed using a button 3 popup menu over the map legend.	414
Upper level fields from D2D grids are now available for use in the GFE and with smart tools.	429
Can now toggle map visibility rather than only unloading maps.	473
A text entry field in the Set Value dialog now allows the user to enter a value by typing.	484
Added capability to change line style (patterns), and line width for the spatial editor visualizations. The user can now change the style and width for contours, bounded areas, and wind barbs/arrows. The change is accomplished through the button 3 popup menu over the Spatial Editor legends. A default can also be set in the gfeConfig.py per weather element name.	493
Font sizes can now be changed interactively.	599
Any color can now be selected for graphic colors via the color wheel.	603
Redefined button clicks on grids in the grid manager. Button 1 click makes grid editable and removes visibility of other grids in the spatial editor. Button 2 click makes grid editable, but maintains current visibility of other grids in the spatial editor.	645
Quickview button added to button bar to allow easy access to this function.	646

Splash screen has been added allowing selection of the user and configuration file for the GFE session.	
The graphic color menu now has an entry called "Choose..." which brings up a color selector.	
The interface for smart tools has been improved and a new template has been provided.	
Moved Graphic Color selection out of Display Attributes Dialog since it can be done from the legend. Moved the Display Attributes entry from the MB3 popup over the GridManager to the Spatial Editor legend.	
The toggle legends technique on the spatial editor has been changed to work like D2D. There are now two of the following entries available on the spatial editor popup depending upon the current state of the legends (MAPS, Spatial Editor Time, Weather Elements): Hide Legends, Show Map Legends, Show Weather Element Legends.	
Revised click1/click2, drag1/drag2 on the pick up value dialog. Click1 and drag1 now pick up a value. Drag2 picks up a value. Click2 toggles the zoom on the pick up value dialog.	
A color table editor is now available through the Other... button 3 popup over the grid or map background spatial editor legend. The dialog allows the user to select virtually any color.	
A new dialog to define config and ifpIMAGE files has been provided. Off the Main Menu --> GFE --> Define Config and ifpIMAGE Files... works just like Define Text Products and Define Procedures Dialogs	
Edit Area and Query Dialog: * Submit now clears query * Added "Recall Query" button to recall up to 10 past queries * Added "EditAreaGroups" entry to gfeConfig so define the initial Edit Action Groups to be selected when the Edit Area and Query Dialog appears.	
The Set Value Dialog (PickUpValue) for vector weather elements now allows direction entries either by a 2 digit direction (in 10s of degrees) or by one of 16 compass points (e.g., ENE).	
Added menu entry to set the current pickup value to all selected grids. Grids->Assign PickUp Value. This complements the previous functionality Grids->Assign Default Value.	

Added "Split Grid" to the button 3 popup on the Grid Manager. This will split the grid at the time constraint boundary nearest to the popup location.	
Added "Assign PickUp Value" to the button 3 popup on the Grid Manager. This will assign the current pickup value to the entire grid over which the popup menu was launched. The labels for "Assign PickUp Value" and "Assign Default Value" have been changed to indicate the actual value to be assigned.	

Changes to Configuration Files

serverConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/serverConfiguration.html	TRACKING #
None	
gfeConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/gfeConfiguration.html	
Pencil tool area of influence is now configurable.	481
The gfe config file is now served up by the server, allowing for multiple config files.	651
DefaultColorTable_minWaveLength and DefaultColorTable_maxWaveLength have been renamed indicate left/right positioning.	665
A configuration item has been added allowing the user to specify whether the the grid manager and spatial editor should be in a horizontal or vertical relation to each other upon startup of the GFE.	707
The GFE now supports masking of the displayed domain based upon the site id. The GFE config file can now specify an edit area to be used as a mask for a site id. Spatial data will then only display inside the given mask.	
gfeConfig.py has new entries: weatherType_defaultIntensity and weatherType_defaultCoverage. These define the weather set value dialog defaults for intensity and coverage based on the weather type.	
A new entry exists in gfeConfig.py: DefaultSamples. It provides a list of named sample sets that are automatically displayed when the GFE is first started.	

Following items added to the gfe configuration: * WindArrow and WindBarb default sizes -- both overall and for a specific weather element. * WindArrow scaling, linear or logarithmic -- both overall and for a specific weather element. * Wind Sample Format - in either ddff, 8pt, 16pt, or d/f formats -- both overall and for a specific weather element.	
Fit to Data color tables are now an option in the gfe configuration file.	
OfficeDomain_expand has been changed to OfficeDomain_expandLeft, OfficeDomain_expandRight, OfficeDomain_expandTop, and OfficeDomain_expandBottom. This gives the user more flexibility.	
The TK_font and PYTHON_font have been removed from the gfe configuration file and no longer can be configured.	
Font sizes throughout the GFE can now be configured through the gfe configuration file.	
Maps.py Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/mapConfig.html and localMapsConfig.html. It is recommended that you eliminate any copy you have made of Maps.py and placed in /awips/GFESuite/etc/SITE/Maps.py, and use the new localMaps.py technique.	
Functionality of createEditAreasFromMaps has been put into the server and is controllable via the Maps.py file.	618

Other Changes to Appearance and Functioning

Hour glass cursor now appears for some events where the user must wait until the GFE completes processing.	TRACKING # 233,705
Maps are now decompressed in memory to save disk space.	378
The spacing of contour labels has been improved.	419
Sample tool readout now includes underlying shadow for better readability.	447
Query dialog now contains mathematical operators.	451
Sample points can now display lat/lon values.	476
The initialization menu is more intuitive.	509
Only one initialization process runs at a time.	510

Pre- and post-processing is now supported in smart tools.	531
Performance has improved for some grid operations.	577
Color bar for Wx now contains common values via button 3 popup menu.	598
The Display Attributes dialog now displays the actual color rather than its name.	604
Different weather elements can now use the same display colors.	647
Information regarding details of the particular build of the GFE that the user is running is now written in the GFE log file at startup.	649
Information regarding details of the particular build of the server that the user is running is now written in the server log file.	650
When creating a new tool, the initial dialog selection for the "weather element to modify" now defaults to the currently active weather element.	668
In the Sample menu, the Save entry has been renamed to Save/Delete	678
Scrolling in the grid manager has been improved.	700
Valid options in the Display Attributes dialog are more intuitive.	708
Default delta values can now be set on a per weather element basis.	712
BASE, SITE, USER concepts have been added.	
The ifpImage program has replaced the ifpGIF program to allow more flexibility and easier use in creating images.	
When a new subkey is added in the Set Value dialog for Wx, it now appears with the same values as the last sub key.	
TextProducts: -- Added option of naming forecast definition simply "Definition" instead of the product name. This allows for easier copying/pasting of Text Products. -- If "displayName" is None or "None", the TextProduct will not appear in the Product Generation menu. This way sub-products that are part of combinations do not have to clutter the menu. -- Added error handling for invalid weather elements and invalid edit areas requested for sampling.	
Added "scale" type of variable to VariableList (used in Smart Tools and Smart Text Products) which displays a slider-bar for user input.	

Smart Tools can now access weather elements, including models, that are not loaded in the GFE. Note: They can access, but NOT modify unloaded weather elements.	
Smart Tools can now be declared as a class and inherit from the SmartScript class which has a library of useful methods. The system is backward-compatible so existing Smart Tools will still work.	
The Break Lock Dialog now contains the IP address or hostname of the owner of the lock.	
TextProduct enhancements: Added "autoUpperCase" to Text Product definition to make resulting text all upper case. Added "autoSentence" to Text Product definition so sentence formatting can be turned off if desired.	
In the Edit Action dialog, the Extra Tools and Extra Scripts windows have been removed, and a Utilities window added. There are no longer Edit Action Groups. Instead, the BASE, SITE, USER structure allows you to have your own set of edit actions appearing in the Edit Action Dialog.	
The "I" in the grid block of the grid manager has been changed to "P" to indicate that the grid is populated instead of initialized. The terminology of initialized has been changed to populated.	
The GFE may now be started in a displaced real-time mode, for purposes of reviewing old data. The -z switch takes the start time in the form of yyyymmdd_hhmm.	
Added Smart Tool arguments: "lat", "lon" which give the corresponding latitude and longitude values for the current point.	
Removed "S" button from Button Bar.	
Added two example Text Products for looping through a component product with Edit Areas or Time Periods.	
Added capability to handle Weather-type elements in a table. Example was added to the Table Template.	

Bug Fixes

Sample Set and Reference Set inventory change notifications no longer ignored in the GFE.	TRACKING # 102, 103
Map legends no longer disappear when toggling a map on or off.	203
Set Value dialog for Wx now displays better default values.	218
When using the Contour Tool, previously removed contours are no longer added back when a new contour is added.	251
GFE will no longer start until all maps are processed.	312
Weather Element Browser now will always display the Load and Cancel buttons, regardless of the size of the window	335
When a Wx grid contains multiple weather types, the types are now displayed in the correct order as specified in the configuration.	524
Break lock dialog will now never become so large that the operation buttons are inaccessible.	548
Break lock dialog will now successfully find all locks.	549
Time shift dialog bug fixed.	588
Invalid menu items that occurred in some situations in the temporal editor have been removed.	592
Fixed incorrect time range selection.	596
Bug in recalculating contours has been fixed.	606
Bug in Edit Action dialog has been fixed.	608
Bug when using contour tool has been fixed.	609
GFE will no longer save a tool with an invalid name.	610
GFE no longer allows two tools to have the same name.	612
Consistency Script modification dialog now shows names of independent variables.	615
Fixed bug that caused some grids far to the right to not be visible in the grid manager scrolled completely to the right	620
Replaced occurrence of the obsolete term "Reference Set" with "Edit Area" in a dialog.	621

Fixed parsing error that occurred in the Edit Area and Query dialog when the "+" symbol was being used for the union of two queries involving Wx.	622
Fixed bug that prevented user from removing all contours in the contour tool.	623
Fixed bug that caused some segments of contour lines to be missing.	624
Contour tool contours are no longer hidden under the contours of the grid display.	629
For Winds, the smooth tool now only smooths the vector components that are active according to the Vector Edit Mode.	630
Fixed problem with the Wx key needing a space before the final quote in order to be evaluated correctly.	631
The fuzz values and discrepancy values defined in gfeConfig.py are no longer being ignored.	632
Font appearance has been improved.	633
Calculations in the QPF Smart Tool have been corrected.	635
MRF time constraints have been changed from local time to GMT.	636
Slider bar time constraints have been fixed in ifpInit.	637
Corrected problem where snow was being generated in initialized grids where rain should have appeared.	638
Fixed problem where Weather Element Browser would not save a new group.	639
GFE will no longer crash when toggling topography.	640
Load button has been removed from the Volume Browser.	642
Syntax errors in gfeConfig file will now prevent the GFE from starting.	655
Invalid temporal editor pane sizes in the gfeConfig file are now automatically adjusted to a valid size.	658
Invalid animation speeds in gfeConfig file are now caught and handled.	663
Error when using the smarttool avg() function has been corrected.	666
Fixed bug where user could not toggle topography more than once.	677
When selecting "Fit to Data" in a temporal editor pane, the visuals displaying the data no longer disappear.	683

User can no longer delete or save sample sets that are write-protected.	688
User can no longer delete or save edit areas that are write-protected.	689
User can no longer delete or save color spectrums that are write-protected.	690
User can no longer delete or save tools, edit area groups, bundles, smart scripts that are write-protected.	691
Clicking on grids while in Quick View mode no longer causes a system crash.	715
A performance problem when using the Save/Delete Edit Area dialog has been fixed.	724
Define Procedure problems have been corrected.	743,744

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

MEMORANDUM FOR: All NWS Regional Headquarters, Regional Maintenance Specialists, Electronic Systems Analysts, and Electronics Technicians [Engineering Handbook (EHB)-13, Series II distribution]

FROM: W/OPS1 - John McNulty for Mark S. Paese

SUBJECT: Transmittal Memorandum for EHB-13 Series II, Issuance 01-16

1. Material Transmitted:

Engineering Handbook No. 13 Series II, Advanced Weather Interactive Processing System (AWIPS), section 5.1, AWIPS System Modification Note 2, Linux Workstation Installation.

2. Summary:

AWIPS System Modification Note 2 provides hardware and software installation instructions in support of the Linux port project Operational Demonstration held during the May-July, 2001 time frame. The site ESA will install and configure the Linux workstations to augment two of the existing HP workstations.

3. Effect on Other Instructions:

None. File this note in EHB-13, Series II, Section 5.1.

AWIPS SYSTEM MODIFICATION NOTE 2 (for Electronic Systems Analysts)
Maintenance Logistics & Acquisition Division
W/OST: CP
W/OPS12: FJZ

SUBJECT : Linux Workstation Installation

PURPOSE : To provide hardware and software installation instructions for two Linux workstations.

AUTHORIZATION : The authority for this patch modification note is Request for Change NWS 673

EQUIPMENT AFFECTED : Advanced Weather Interactive Processing System (AWIPS) HP workstations at the sites listed in attachment A

SITES AFFECTED : See attachment A

PARTS REQUIRED : All required parts will be shipped to the site.

Shipment 1

- This modification note with attachments
  - AWIPS Build 5.1.1 Linux D2D Software Release Notes
  - GFESuite Linux Release Notes
- 2 - 10/100 BaseT LAN cable
- AWIPS software installation CD

Shipment 2

- Dell Linux machine
- Monitor
- Keyboard
- Mouse
- Dell Image Restore CD set

MODIFICATION PROCUREMENT : None

TOOLS REQUIRED : Standard site tool kit

TEST EQUIPMENT REQUIRED : None

EFFECT ON OTHER: INSTRUCTIONS None. File this note in EHB-13, Series II, section 5.1.

VERIFICATION STATEMENT : This modification was tested at the National Weather Service Headquarters NMTW, Silver Spring, MD (SLVM2).

TIME REQUIRED 2 hours

GENERAL

This modification note provides Linux workstation and software installation instructions in support of the Linux port project Operational Demonstration held during the May-July, 2001 time frame. The purpose of the demonstration is to provide information on the AWIPS Linux workstation installation process and operational performance. In addition, the demonstration will provide NWS management with performance data on the AWIPS Linux workstation in routine operational use at 15 offices (11 WFOs, 2 RFCs, 1 Regional Headquarters, and 1 National Center) during a 60-90 day period.

The site ESA will install and configure the Linux workstations to augment two of the existing HP workstations. The purpose of the "Augmented Workstation Configuration" is to connect the Linux workstation into the operational forecast environment with minimal system impact. The AWIPS Workstation Configuration before and after "Augmentation" is shown in figures 1 and 2 below. At the present time, certain workstation functions such as SCAN, WWA, WHFS, and NWS RFS are not supported on the Linux workstations but are planned for future software revisions.

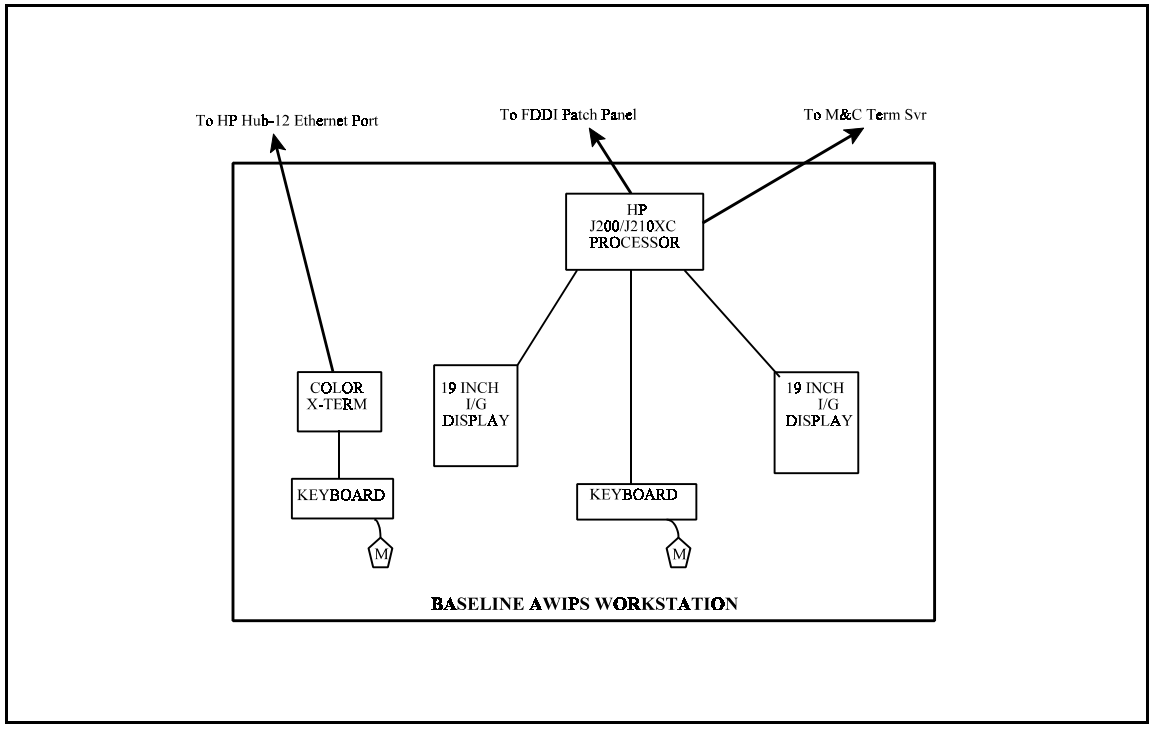

Figure 1: AWIPS workstation configuration **before** Linux augmentation

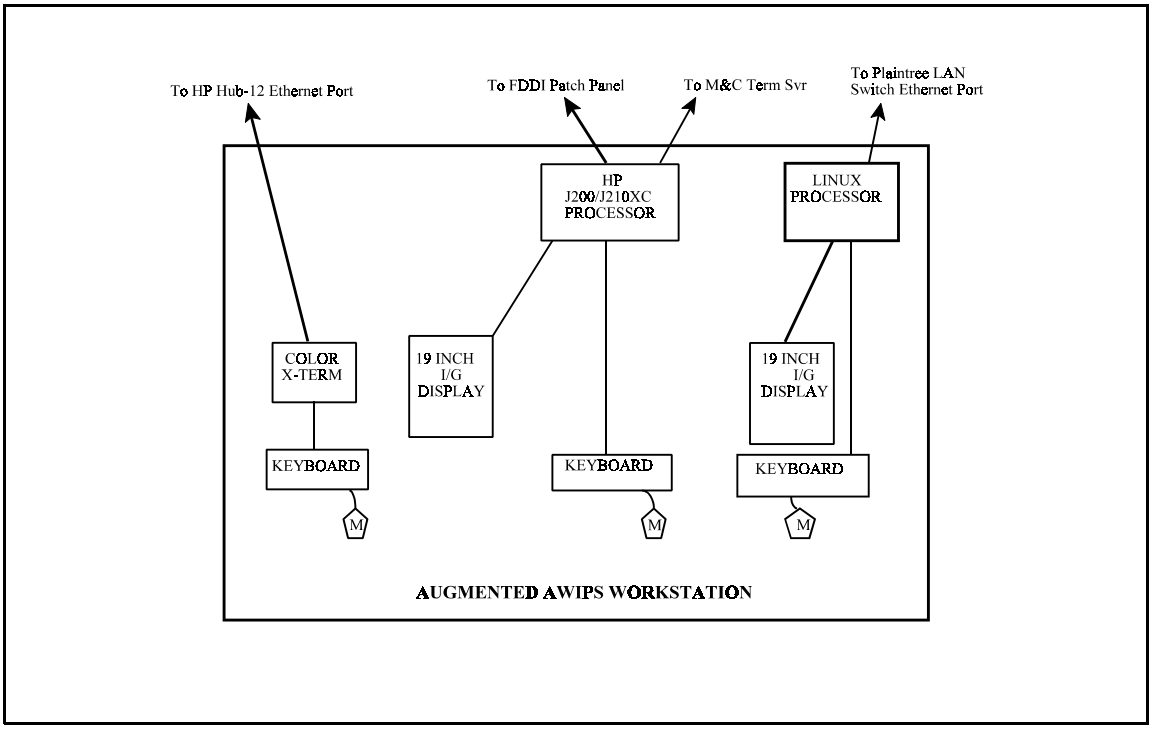

Figure 2: AWIPS workstation configuration **after** Linux augmentation

Affected sites listed in attachment A will receive two shipments. The first shipment contains this modification note, a 10/100 BaseT LAN cable, the AWIPS software installation CD, and release notes. The second, is dropped shipped directly from the Dell factory and contains the Dell Linux machine, monitor, keyboard, mouse, and a Dell Image Restore CD set. The Image Restore CD enables sites to restore a disk image to the Linux workstation. The workstations are preconfigured by the Office of Systems and Technology with Red Hat version 7.0 Linux operating system, operating system patches, Matrox video card drivers, and the required disk partitions for the AWIPS software.

PROCEDURE

I. Hardware Installation Procedure

A. Linux Workstation 1 Installation Procedure

1. Based on the site's workstation usage, identify the two AWIPS Hewlett-Packard (HP) workstations to be augmented by the two new Linux workstations.

2. Unpack the Dell Linux workstations.

3. At the HP workstation to be augmented, remove one of the HP graphics monitors and place the monitor in storage for the remainder of the operational demo. In the event of a Linux workstation failure, it may be necessary to reinstall the HP monitor to restore the augmented HP workstation to full functionality.

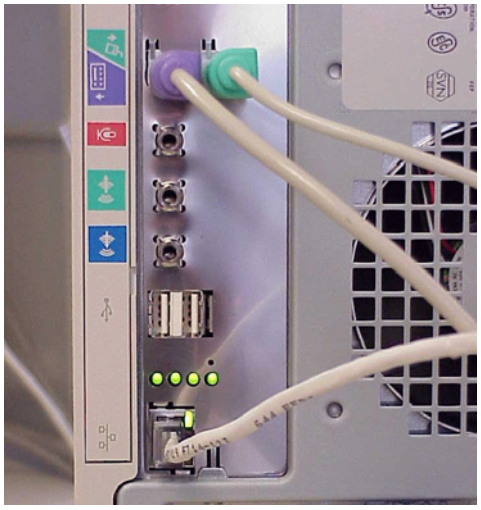

Figure 3

4. Place the new Dell monitor in place of the removed HP monitor. Also place the new Dell keyboard and mouse on the table in front of the new Dell monitor. Label the new Dell monitor with the hostname "lx1-xxx" where xxx is the site ID.

5. Place the new Dell CPU on the floor near the existing HP workstation CPU. Connect the keyboard, and mouse to the back of the Dell CPU (figure 3). (These connections are color coded to help you identify the proper port on the back of the CPU for each cable connection.) Connect the Dell CPU power to an existing power distribution circuit near the unit.

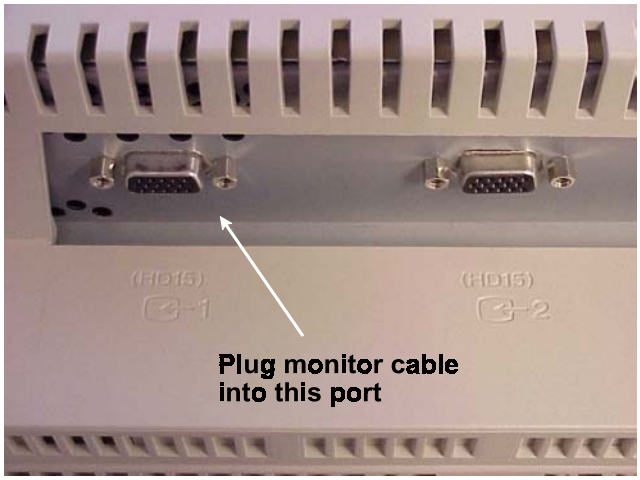

Figure 4

6. Locate the monitor video cable. At the back of the monitor, locate the port labeled HD-15 (1). Plug either end of the monitor video cable into port HD-15 (1) (figure 4).

7. At the back of the CPU, locate the Matrox video board. Identify port 1 on the video board. Plug the other end of the monitor video cable into port 1 [figure 5 (disregard masking tape labels on figure 5. Delivered CPUs will not have labels).

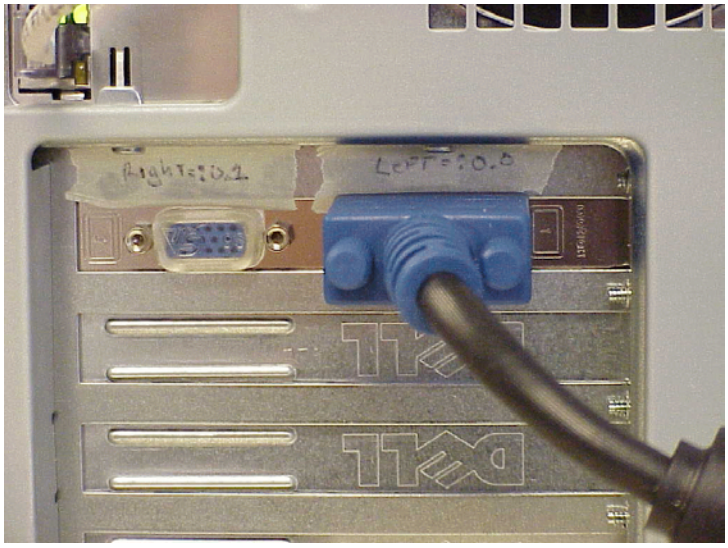

Figure 5

8. At the front of the monitor, ensure the monitor input switch setting is set to position “1" (figure 6).

9. Connect the 10/100 BaseT LAN cable, shipped with the modification note into the RJ-45 10/100 BaseT port on the Dell machine (figure 3).

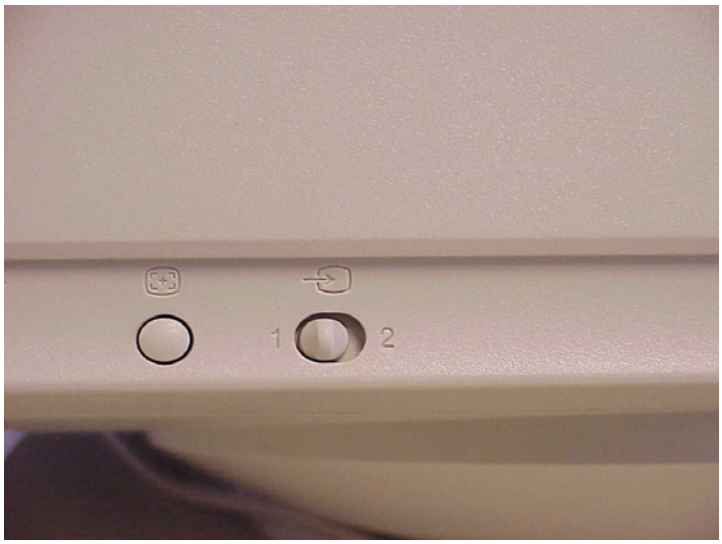

Figure 6

10. Run the LAN cable under the raised floor and plug the other end into port 4 of PlainTree LAN switch 1.

This completes the first Linux workstation installation procedure. Continue with part B to install the second Linux workstation.

B. Linux Workstation 2 Installation Procedure

1. Identify the second AWIPS HP workstation to be augmented with the second Linux workstation.

2. Repeat step 3-10 in part A to install the second Linux workstation.

3. Label the second Dell monitor with the hostname “lx2-xxx” where xxx is the site ID.

4. Plug the LAN cable for the second Dell machine into the RJ-45 port 4 on PlainTree Hub 2.

5. Power up the Linux CPU and monitor and verify it properly boots up.

This completes the second workstation installation procedure. Continue with section II for the software preinstallation procedure.

II. Software Installation Procedure

A. Preinstallation Requirements

The procedures below provide instructions for configuring the AWIPS Linux workstation and installing the AWIPS R5.1.1-L D2D Linux version, “WARNGEN,” and “NWS1-6" of “GFESuite.”

NOTE: Read the entire document before beginning the installation on your LINUX workstations.

1. Prior to configuring the Linux workstations, become familiar with the systems by reviewing the following steps. It may be necessary to record the information so that it can be referenced in the next sections.

   a. The hostname site id is required in part B step 10b. This will be used to set the Linux hostname. It must be entered in lowercase.

      Example: If the ds1 hostname is “ds1-abq”, then the “hostname site id” is abq.

   b. Obtain the fxa localization site ID for step 16 and 17 by logging in to the augmented HP workstation as user **fxa** and typing:

      `echo $FXA_LOCAL_SITE`

NOTE: Obtain and record the fxa localization site ID on each of the two augmented HP workstations. The appropriate fxa localization site ID must then be used for lx1 and lx2.

c. Obtain the ds1 IP address for step 10c by logging in to ds1 and typing:

`grep ds1-<siteid> /etc/hosts`

Where **`<siteid>`** is the hostname site ID

d. Remain logged in to ds1 and obtain the default gateway IP address for step 10d by typing:

`grep "ROUTE_GATEWAY\[0\]" /etc/rc.config.d/netconf`

e. The sample script log output files are found on the cd in the "/mnt/cdrom/script-output" directory. A hard copy is not included with this modification note. Use the sample script output files to verify the messages displayed during the installation.

NOTE: 1. **DO NOT** use <CTL-C> to stop the installation script.

2. Do not proceed if unexpected problems are encountered. Before taking action, contact the NCF immediately at 301-713-9344.

This completes the preinstallation requirements. Continue with part B for the AWIPS R5.1.1 Linux workstation installation procedures

B. AWIPS R5.1.1 Linux Workstation Installation Procedures

NOTE: 1. The estimated installation time for lx1 is 45 minutes to 1 hour
The estimated installation time for lx2 is 30 to 45 minutes

2. Perform the software installation procedure on lx1 first, then repeat the procedure for lx2.

1. Before installing AWIPS R5.1.1-L on the Linux workstations, call the NCF at 301-713-9344.

2. Log into the Linux workstation as **`root`** with password **`root`**.

3. Open a terminal window and change the root password to the root password used on AWIPS. At the prompt, type **passwd** to change the root password:

   ```
   prompt> passwd
   ```

4. Create a directory by typing:

   ```
   mkdir /local/install
   ```

5. Mount the Linux Configuration/AWIPS CD by placing it into the CD drive.

6. Wait for the **/mnt/cdrom** window to appear. Close it by selecting **File** then **Close Window**.

7. Open a terminal window and install the Red Hat security errata script. (Note, ignore the three messages referring to nonempty directories in "/usr/src/redhat.") The script will take approximately 1-3 minutes. Type the following:

   ```
   script -a /local/install/install-rpm.out
   cd /mnt/cdrom
   ./install-rpm.sh
   ```

8. Once the script is complete, a message "`done running install-rpm.sh`" will display. Exit the script by typing:

   ```
   exit
   ```

9. Access the "install-rpm.out" script file for errors by typing:

   ```
   /mnt/cdrom/error-check.sh install-rpm.out
   ```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

10. Run the next script to configure the network by typing:

    ```
    script -a /local/install/config-network.out
    cd /mnt/cdrom
    ./config-network.sh
    ```

11. The script will display five questions. Answer them as follows:

.

a. `Enter your Linux workstation number [1 or 2].`
`-- If this is your first Linux workstation, enter 1`
`-- If this is your second Linux workstation, enter 2`
`Enter 1 or 2 now:`

Answer **1** for lx1 or **2** for lx2

b. `Enter your AWIPS site id.`
`-- Example: if your DS1 hostname is 'ds1-abq',`
`you would enter --> abq <-- as your site id.`
`Enter your site id now:`

Answer in lower case, for example: **nmtw**

c. `Enter the IP address of your DS1:`

Example: **165.92.20.5**

d. `Enter the IP address of your default gateway:`

Example: **165.92.20.70**

e. A list of entries will appear on the screen, then the question "`Are these entries correct? [y/n].`" Before answering **y**, write down the host IP address.

f. When the message "`done running config-network.sh`" is displayed, type:

exit

g. Access the "config-network.out" script file for errors by typing:

/mnt/cdrom/error-check.sh config-network.out

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

12. Perform the following configuration procedure for **lx1 only**.

NOTE: Perform step 12 for lx1 only. If configuring lx2, skip to step 13.

a. After the "config-network.sh" script has completed successfully (step 11 above), perform the following steps:

(1) Start a script output by typing:

```
script -a /local/install/config-rcommands.out
```

(2) As **root**, perform the following commands (ignore messages referring to Kerberos authentication when performing the ftp command):

```
cd /local/install
ftp ds1   (login as awipsusr)
ftp> cd /tmp
ftp> put config-rcommands.sh
ftp> dir config-rcommands.sh (To verify config-rcommands.sh is
                              now in "/tmp" directory on ds1)
ftp> quit

telnet ds1 (login as awipsusr)
su -
cd /tmp
chmod 500 config-rcommands.sh
./config-rcommands.sh
```

(3) When the "config-rcommands.sh" script is complete, remove this script by typing:

```
rm config-rcommands.sh
```

(4) Exit **root** user and **awipsusr** by typing:

```
exit
exit
```

(5) After exiting, change directory, remove the script from the Linux workstation, and exit to save the script output by typing:

```
cd /local/install
rm -f config-rcommands.sh
exit
```

(6) Access the "config-rcommands.out" script file for errors by typing:

```
/mnt/cdrom/error-check.sh config-rcommands.out
```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

13. Run the following script to configure the remainder of the system. This script will take approximately one minute to run.

a. To run the script type:

```
script -a /local/install/config-system.out
cd /mnt/cdrom
./config-system.sh
```

NOTE: The monitor may flash and darken when the system clock is reset during script execution. If this occurs, press the Enter key to allow the script to continue. (This may not happen at all installations).

b. Once the script is complete, the following message is displayed:

```
done running config-system.sh...
```

c. After the script ends, type:

```
exit
```

d. Access the "config-system.out" script file for errors by typing:

```
/mnt/cdrom/error-check.sh config-system.out
```

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

14. Reboot the Linux workstation and observe the messages for errors. To reboot type:

    reboot

NOTE: Ignore "FAILED" messages as the system shuts down.

15. When the system is powering back up, observe the "OK" messages as each item is started on boot-up. If a "FAILED" message appears, call the NCF at 301-713-9344. If all start-up messages show "OK," proceed to the next step.

NOTE: Near the start of system boot-up, ignore the message: “Time-of-day not set.” The time of day will be set in step 16b.

16. Run the script to install WFOA

    a. At the Red Hat login prompt, log in as **root** with the AWIPS root password established in part B step 3.

    b. In a terminal window, enter the following commands to start the script output log and mount the cd rom:

    ```
    script -a /local/install/install-wfoa.out
    setclock
    mount /mnt/cdrom
    ```

    c. Wait for the **/mnt/cdrom** window to appear. Close it by selecting **File** then **Close Window**.

    d. Change directory by typing:

    ```
    cd /mnt/cdrom
    ```

e. The script will ask for the "fxa localization site ID" and the "HP workstation number." The workstation number refers to the HP workstation being augmented with the Linux workstation. Enter only the number (i.e. for ws3 enter **3**).

f. Run the install script by typing:

./install-wfoa.sh

NOTE: For step g(1), enter the fxa localization site ID for the augmented workstation acquired in part A step 1b. Localization will fail If the incorrect fxa localization ID is entered.

g. Answer the following questions:

(1)
```
Enter your fxa localization site id (site id used in
localization).
-  Examples:  BOU, LWX, etc.
(If your fxa site id is NMTW, then simply hit the Enter key.)
Enter your fxa site id now:
```

(2)
```
Which HP workstation are you augmenting with this
Linux workstation?
-- Example: enter 3, if you are augmenting your ws3
HP workstation.
Enter this integer now:
```

h. When the message "`done running install-wfoa.sh...,`" appears, type:

exit

i. Access the "install-wfoa.out" script file for errors by typing:

/mnt/cdrom/error-check.sh install-wfoa.out

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

17. Run the script to install GFESuite. The script will take approximately 5 minutes to run.

a. When queried by the “install-gfe.sh” script, hit **Enter** to select default values. The default values are as follows:

Query	Default Value
Installation Directory	/awips/GFESuite
Site ID	the ID used in the hostname
IFPServer RPC port number	98000000
IFPServer RPC host	lx1-<siteid>

NOTE: If a site requires to enter a site ID other than the default site ID, enter the site ID in capital letters.

The default “Site ID” is the site ID used in the hostname. Enter the site ID used in localization (part A step 1b). Hit **Enter** to accept the default site ID only if the value is the localization site ID (in most cases it will be).

b. To start the log file and execute the script type:

```
script -a /local/install/install-gfe.out
cd /mnt/cdrom
./install-gfe.sh
```

c. Answer the following questions (hit **Enter** to accept default values):

(1) `Installation directory [/awips/GFESuite]:`

(2) `You may need to change the site id if it was not picked up from an old installation`
`Site ID [NMTW]:`

Enter the site ID acquired in part A step 1b.

`The next two items identify the machine and port where the IFP Server is to be run. The defaults for these are probably what you want.`

(3) `IFPS Server RPC port [98000000]:`

(4) `IFPS Server RPC host [lx1-nmtw]:`

d. When the message "`done running install-gfe.sh...,`" is displayed type:

`exit`

e. Access the "install-gfe.out" script file for errors by typing:

`/mnt/cdrom/error-check.sh install-gfe.out`

NOTE: Ignore file names containing anyone of the following strings:

Error, error, cannot, incorrect, Fault, FAIL, Fail, No such.

18. Unmount the CD by typing:

```
cd /
umount /mnt/cdrom
```

19. If the "umount" command fails, type:

```
fuser -k /mnt/cdrom
umount /mnt/cdrom
```

20. Remove CDROM from the CD carriage.

This completes the AWIPS R5.1.1 Linux workstation installation procedures

C. Post Installation Procedure

1. Run D-2D or GFESuite by performing the following procedure:

   a. Log out and then log back in as **`awipsusr`**.

      (1) To log out, select the Gnome footprint in the lower-left corner of the screen select **Log out**.

(2) The Gnome display manager occasionally hangs when logging out. If this happens, rlogin to the affected Linux workstation from another workstation on the LAN and perform the following steps as **`root`** user:

```
ps aux | grep -v grep | grep "/usr/bin/gdm"
```

(3) kill all the processes shown by issuing the kill command on the process id(s) listed in the second column. This will restart Gnome and permit logins.

b. At the login screen, log in as **`awipsusr`**.

NOTE: 1. The D-2D and GFESuite should only be run while logged in as awipsusr.

2. The GFESuite is enabled 10 - 15 minutes after the installation. Clicking on the GFE icon immediately after the installation will cause a GFESuite program execution delay of approximately 3 - 5 minutes.

c. Use the D-2D and GFESuite icons in the upper left hand corner of the screen to start D-2D and GFESuite. Observe the Gnome panel is now vertical and placed along the left hand side of the screen. The Gnome footprint is in the upper left hand corner of the screen at the top of the Gnome panel. Select the footprint to log out.

NOTE: 1. If only one monitor is attached to the Linux workstation, only the "D-2D L" icon will be functional for starting D-2D on the monitor. "D-2D L" represents D-2D on a left monitor, and "D-2D R" represents D-2D on a right monitor. If two monitors are attached to the Linux video card, modify the D-2D startup script "god2d" in the “/awips/fxa/bin” directory to permit D-2D displays on both monitors. See the “god2d” script for instructions. **Do not change the "god2d" script when using one monitor.**

2. When logged in as root, awipsusr, and/or fxa, the default path places the “/usr/bin” ahead of “/usr/kerberos/bin” directory, in effect, avoiding the use of the kerberos versions of rsh, rlogin, etc. If problems occur when using r-commands logged into the Linux workstation as anything other than root, awipsusr, and/or fxa (i.e., a non-awips account), change the path so that the “/usr/bin” is searched before “/usr/kerberos/bin” directory.

REPORTING MODIFICATION

Report the completed modification on a WS Form A-26, Maintenance Record according to instructions in Engineering Handbook 4 (EHB-4), Engineering Management Reporting System (EMRS), Part 2, and appendix I. A sample A-26 form is attached. As an additional guide, use the information in the table below.

Block #	Block Type	Information
5	Description	All set up and installation activities associated with AWIPS System Modification Note 2 and AWIPS Linux Workstation Demonstration Plan.
7	Equipment Code	AWIPS
8	Serial Number	001
15	Comments	Installed hardware and software associated with AWIPS Linux workstations I.A.W. AWIPS System Mod Note 2.
17a	Mod. No.	2

for John McNulty
Chief, Maintenance, Logistics, and Acquisition Division

Attachment A - Affected Site List
Attachment B - WS Form A-26 Sample
Attachment C - AWIPS Build 5.1.1 Linux D2D Software Release Notes
Attachment D - GFESuite Linux Release Notes

Attachment A

Site	SID	Region
WFO Tulsa, OK	TSA	Southern
WFO Tampa, FL	TBW	Southern
WFO Wilmington, OH	ILN	Eastern
WFO Taunton, MA	BOX	Eastern
WFO Pleasant Hill, MO	EAX	Central
RFC Missouri Basin, MO	KRF	Central
WFO Wichita, KS	ICT	Central
WFO Boise, ID	BOI	Western
WFO Sacramento, CA	STO	Western
*WRHQ Salt Lake City, UT	VHW	Western
WFO Juneau, AK	AJK	Alaskan
RFC Anchorage, AK	AFC	Alaskan
WFO Honolulu, HI	HFO	Pacific
WFO GUAM	GUM	Pacific
Storm Prediction Center	SPC	NCEP
WFO Medford, OR	MFR	Western
WFO Eureka, CA	EKA	Western
WFO Reno, NV	REV	Western
WFO Omaha, NE	OAX	Central
WFO Topeka, KS	TOP	Central
WFO Springfield, MO	SGF	Central
WFO Jackson, KY	JKL	Central
WFO Oklahoma City, OK	OUN	Southern
WFO Knoxville, TN	MRX	Southern
WFO Atlanta, GA	FFC	Southern
WFO Charleston, WV	RLX	Eastern
WFO Roanoke, VA	RNK	Eastern
WFO Greenville, SC	GSP	Eastern

* NO HARDWARE- SOFTWARE ONLY

Attachment B

WS FORM A-26 (4/94)

WS FORM A-26 (4/94)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

ENGINEERING MANAGEMENT REPORTING SYSTEM
MAINTENANCE RECORD

Document Number: **G 49978**

General Information	1. Open Date	Time	2. Initials	3. Response Priority (check one)	4. Close Date	Time
	4 / 30 / 01	0900	JMM	○ Immediate ○ Low ○ Routine ⊗ Not Applicable	4 / 30 / 01	1100

5. Description: **All set up and installation activities associated with AWIPS System Modification Note 2 and AWIPS Linux Workstation Demonstration Plan.**

Equipment Information	6. Station ID	7. Equipment Code	8. Serial Number	9. TM	10. AT	11. How Mal.
	EAX	AWIPS	001	M	M	999

12. *EQUIPMENT OPERATIONAL STATUS TIMES*	a. Fully Operational	b. Logistics Delay	Partly Operational	c. All Other	d. Logistics Delay	Not Operational	e. All Other

13. *Parts Failure Information*

Block #	a. ASN	b. NSN	c. TM	d. AT	e. How Mal.	f. Qty.	g. Maint. Hrs.
1							
2							
3							
4							
5							

14. *Work Load Information*

Type	Staff Hrs.
a. Routine	
b. Non-routine	
c. Travel	
d. Misc.	2:00
e. Overtime	

Miscellaneous Information	15. Maintenance Comments	16. Initials
	Serial Number Linux Workstation 1: _____ Serial Number Linux Workstation 2: _____	JMM

17. *SPECIAL PURPOSE REPORTING*	a. Mod. No.	b. Mod./Act./Deact.Date	c.	d.	e.
	2	4/30/01			

18. *CONFIGURATION MGMT. REPORTING* (use as directed)	ASN	Vendor Part Number (New Part)	Serial Number (Old Part)	Serial Number (New Part)

Attachment C

AWIPS Build 5.1.1 Linux D2D Software Release Notes

These are changes from Build 5.0.

Note: These notes describe features of the D-2D software that runs on the demonstration Linux workstations. The Linux D-2D software is Build 5.1.1, while the AWIPS database is at 5.0. Linux versions of non-D-2D features such as SCAN, FFMP, and WWA, and some D-2D items like Product Maker are not yet available; in most cases, these have been removed from the menu.

Infrastructure

- A new localization may now be created only by the fxa user.
- Modifications to logStream allow collective logging - for example, multiple runs of one program can log to a single file.
- Desktop icons are used to start D2D and GFE. See Section C of the Mod Note for details on how to start D-2D and GFE from the Gnome desktop.

Graphics/image workstation

New features

- When using a procedure or the history list, at load time for a bundle you can set a different model or radar for a dataset. This is effected through the **Alter...** dialog, from which you can select an alternate radar or grid, or select different options for use of points and baselines.
- A new **Copy In** button is added to the procedure dialog. This will place the current contents of the display in the procedure. Keyboard accelerator ctrl-b is still available, as before.
- A new control is added to the Options menu replacing the old **Time Resolution** option. When selected, this **Time Options** button (keyboard accelerator ctrl-t) produces a dialog box through which you can control time matching functions.
- If loading to an empty display, you select the time of the last frame, and the time resolution. For example, at 1420Z, you can select METAR plots every 3 hours ending at 12Z. The dialog box shows exactly which datasets will be loaded. This provides a means to deal with a situation of more than 32 frames of data available.

- If loading to a display already containing data, you select an offset time and tolerance. For example, selecting a -2 hour offset will overlay data from two hours before each frame. In the above case, the last frame would be 10Z, the previous 07Z, etc. "Tolerance" refers to how strict the time matching is. "none" means an exact match is required, while "infinite" will put the closest match in each frame, regardless of how far off it is.
- Also added to the Options menu is a new **Data Scale** button, with keyboard accelerator ctrl-s. When enabled, this option displays data on its native scale. For example, if you enable data scaling and select a product from an alternate radar, it will display with that radar at the center of the screen. Other data will overlay on this "dynamic" scale until the screen is cleared or a non-plan-view product is selected.
- Menus for QPF, FFG, and QPE images from the various RFCs are in the Hydro area of the Surface menu, as are some snow products from NOHRSC. The data to support these displays are not available in 5.0.
  Note: After your HP system is upgraded to 5.1.1, these products will become available. At that time, an error in the code may manifest itself if you use these images frequently, especially if you leave them on the display and they auto-update repeatedly. If so, and the display is not restarted for several days, it may crash or otherwise become unhappy.
- Radar items:
  - The radar mosaics now work a little differently. First, the radars composing the mosaic are no longer always automatically the set of radars that are in radarsOnMenu.txt. The number of radars in any mosaic is limited to the closest nine. Most importantly, however, is that there is now an option to supply a table to control which radars are in the mosaic, and allow mosaics of more than one set of radars.
  - The radar announcer now logs receipt of a Free Text Message.

Improvements

- The process of loading bundles from procedures is slightly modified. Now, when you first open a procedure, no bundle is highlighted. A new button, **First**, will highlight and load the first bundle. That button then changes to **Next**, and it will move to the next bundle and load it. The old **Load** button still exists, and will load the highlighted bundle, but not move to the next. The point of this is to have the highlighted bundle represent what is currently in the display.
- Image attributes of four-panel displays can be controlled together or by each individual panel. The panel to be controlled is selected by a pop-up menu.
- It is now possible to edit and blink 24 bit combo images.
- The map backgrounds menu now includes a netCDF-based spotters map (called Spotters Readout on the menu). It is set up by -station localization, based on information in spotters.dat. A sample spotters.dat is found in /data/fxa/nationalData, illustrating the format.

- You now have a choice when loading bundles that use points or baselines. You can display the data either at the current location of the tool (the default), or where it was located at the time the bundle was stored. (As a bonus, the problem with time series graphics and image not matching has been resolved.)
- Volume Browser:
  - You can store difference fields in procedures.
- Radar items:
  - The way all-tilts displays updates has been changed. Now, you see each scan of the volume as it arrives.
  - The VR shear annotation now includes mean distance from the RDA.
  - You are now notified when a one-time or alert request product arrives from the RPG.
  - Menu item User Def Total Precip now reads User Selectable Precip (USP).
- Radar archive:
  - A new interface allows you to delete a store session.
- WarnGen items:
  - The initial number of vertices for a line of storms is now configurable. The value is specified in wwa.config (created from nationalData/wwaConfig.template or a locally-customized version) using warngenDefaultLineVertex.count.
  - To see the areas used by warnGen (cities, counties, zones, CWAs), select from the **Maps**>**Warngen Tables**> menu.
  - (Please note that the **To WWA** button on the warnGen menu has been removed, since a Linux version of that function is not available.)

Linux-specific bugs and notes

- Some of the labels are misplaced on fire weather graphics.
- As usual, procedures are shared among all AWIPS workstations. 5.1.1 (Linux) bundles, however, are not backward compatible with 5.0 (HP) workstations. Do not attempt to display any Linux-stored procedure items on an HP workstation - your IGC process will crash. Your best bet is to just continue making procedures on your HPs. To do anything Linux-specific, either Save As... or create a new procedure with a Linux-tagged name of some sort.
- You can open a text window on the Linux workstation, but there is no Linux text workstation, per se. The workstation will be configured to direct warnGen output to an appropriate text display.
- In order to print from the Linux box, the printer queues will have to be enabled to talk to your office printers.
- Due to differences in the Linux display architecture (24-bit vice 8-bit images, particularly), the behavior of some functions differs. One difference is that fading between combined images and dimming images is considerably slower on the Linux workstation. On the other hand, all image combinations are 8+8 bits, so you don't lose dynamic resolution when you combine images. Changing color tables is also noticably slower, and if you do so on a non-animating display, you'll notice the pie cursor come on to track the progress.
- The MDL provided capability to do WWA "intersite coordination" of warnings created in

WarnGen does not work on the Linux workstation. This limitation may affect the capability to have warnings voiced over NOAA Weather Radio at adjacent WFOs for those ER sites that use it.

- There are incompatibilities between the Linux case archive client and the 5.0 HP server. You'll not be able to run radar archive on your 5.1.1 Linux box.
- When using the color wheel in the Linux color editor, unless brightness is 100% (in HSB mode, or one of the colors is at 255 in RGB mode), the swatch and HSB/RGB sliders show incorrect information when the color chooser pointer is in the range 60 to 180 degrees. If you drag through 60 degrees, you'll see the color jump from yellow to blue. The correct color from the wheel is used when an edit is applied.

Attachment D

GFESuite Linux Release Notes

April 23, 2001

Software Version: GFESuite-Linux, internal revision NWS1-6. Similar functionality equivalent of AWIPS 5.1.2 HP-UX.

New in This Release (since AWIPS 5.1.1 IFPS GFESuite)

This section describes features in the GFESuite Linux version that have changed from the official AWIPS 5.1.1 HP-UX GFESuite. Note that this version of GFESuite Linux is close to the functional capability of GFESuite for AWIPS 5.1.2 HP-UX. If you already have AWIPS 5.1.1 GFESuite HP-UX installed on your AWIPS boxes, this section covers changes made since that software version.

New Feature Highlights

- New D2D data sources are now accessible within the GFE.
- ifpAG now supports the transfer of data between grids of differing resolutions.
- An enhanced grid history display has been provided.
- A localMaps.py file may now be used to add site changes to the Maps.py file.
- Various minor enhancements and bug fixes.

Changes to User Interface

Enabled access to MesoEta data by accommodating reuse of model names in D2D directories. *Note: This change requires the source data be accessed from AWIPS 5.1.1 release.*	TRACKING # 738
Loading edit areas can now be accomplished via the main menu.	753
Can now modify color and fonts in the python editor via an override file (specified in the GFE config).	755
Multiple sample selections can now be made at one time with the Load Samples dialog.	761
Samples can now be defined using lat/lon.	766
Edit areas that result from queries now automatically update when the grid data changes.	783
LAPS and MSAS data from D2D is now available within the GFE.	788, 789

A new utility, coordConversion, has been provided to convert between AWIPS coordinates and lat/lon coordinates.	
The origin of each grid is now displayed graphically through the use of color and symbols in the Grid Manager via the new Toggle Grid History button. Additionally, the origin of each grid is provided in the button 3 menu option Display Grid Info.	TRACKING # 234
User is now alerted to the fact that when creating or deleting user defined objects such as edit areas, sample sets, and smart tools, that identically named objects exist in the base- or site-defined sets.	837
A new program, ifpServerStats, now provides a dump of base, site, and user objects. This is a replacement for the information previously being included in server log files.	854

Changes to Configuration Files

serverConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/serverConfiguration.html	TRACKING #
Site domains have been shifted slightly to support IFPS. Grid domains have been adjusted from 35x35 grids to 37x37 grids; documentation on grid resolution has been added.	809, 810
Resolution "factor" has been removed. The default resolution of grid points is now set to 20 km. You will need to create a localConfig file to change this to a different value.	829
D2D directory references (D2Ddirs) have been updated to add LAPS, both MesoEtas, and MSAS.	738, 788, 789
AREAS have been added to the Weather Definition for Freezing Drizzle, Fog, Blowing Snow, and Blowing Dust.	
The localTC() conversion routine for time constraints now expects values in seconds since midnight, previously it expected values in hours since midnight. This may affect your localConfig.py file if you are using the localTC() function.	
gfeConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/gfeConfiguration.html	

Added ability to display no descriptive name (rather than requiring either short name or long name) in ifpIMAGE legend, allowing user freedom to create their own name. Png_descriptiveName may now be set to SHORT, LONG, or OFF.	833
Increased network time-out to 240 seconds.	752
The background color in the GFE's panes and for the ifpIMAGE output has been made configurable with the bgColor setting.	785
SampleLLPlus_color setting has been added to allow the sample indicator marks to be defined independently of the background color.	
ImageLegend_color setting has been added to allow the color used for indicating that a weather element is being displayed as an image to be defined independently of the background color.	
The names of some maps have been changed (see the Maps.py file). This may affect your MapBackgrounds_default entries for both the GFE and the ifpIMAGE program.	
DataState_* has been removed and replaced with a series of History* entries that define the text, pattern, and color of the grid blocks in the Grid Manager when the Grid Manager is toggled into Grid History Mode.	234
Configuration template used to create a user configuration file now has the BASE import statement as an uncommented statement by default.	856
Maps.py Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/mapConfig.html and localMapsConfig.html. It is recommended that you eliminate any copy you have made of Maps.py and placed in /awips/GFESuite/etc/SITE/Maps.py, and use the new localMaps.py technique.	
editAreaName is now comprised of multiple attributes to eliminate duplicate naming of CWAs. The previous format of editAreaName is still accepted.	859
localMaps.py file has been added as the technique to add site changes to the Maps.py file. This allows redefinition of certain maps as well a new maps to be defined. If you have added or modified maps by creating your own customized Maps.py file in a previous release, you will need to incorporate the changed map names in your localMaps.py file.	864
The formatting of Maps.py has been simplified. Please refer to the documentation on the new format.	

The naming of the automatically generated edit areas (defined in Maps.py) has changed for the following maps: CWA Counties, CWA zones.	859
The Large Cities and Cities maps have been combined into a Cities map, which defaults to all cities greater than 50,000 population.	

Other Changes to Appearance and Functioning

Error message now issued when user tries to define a smart tool with an invalid name.	TRACKING # 389
Implicit scrolling within the time scale is now working.	560
When attempting to split or fragment grids that are already at the minimum duration, locks are no longer issued over those time ranges for those grids.	714
A busy ("hourglass") indicator now appears when performing temporal editor modifications.	720
Grid menu operations are now dimmed (indicating disabled) when displaying the temporal editor.	721
Edit areas are now cached in the GFE to improve performance.	749
Only names with valid syntax are accepted in the Edit Area dialog.	772
Spacing and alignment for Wx values in the Set Value dialog have been improved.	775
Python editor font is now mono spaced.	800
Map background menu is now sorted alphabetically.	802
RPP installation procedure has been simplified.	813
The Loop Properties dialog is now non modal, meaning you can perform other operations while the dialog is open.	827
ifpAG now supports the transfer of data between grids of differing resolutions.	
The names of some maps have been changed (see the Maps.py file). This may affect your command line parameters for the ifpIMAGE and ifpGIF programs.	
More options are now available in the Windows menu of the Edit Actions dialog. This allows for more efficient selection of which windows will be displayed within the Edit Actions dialog.	TRACKING # 842

The initial GFE startup screen now lists users and configuration files in alphabetical order (with upper case listed before lower case).	845
Samplers in HistSample now have the standard deviation function: stdDeviation()	862
Training guide documentation has been updated to include new information on grid data history functionality.	863
Databases are no longer deleted during installation if they are compatible with the newest server.	865
Release version number is now part of all executables. This is accessible from the log files, or from the GFE Help menu.	867
Instructions for auto start of ifpServer upon reboot of machine are now provided.	869
Examples of configuration files have been added throughout the documentation, specifically the localMaps, ifpIMAGE, and localConfig documents.	876

Bug Fixes

Wind barbs are now being completely repainted both inside and outside of time range when being assigned new values.	TRACKING # 716
Using the pencil tool with no active weather element now results in a correctly worded error message.	717
Efficiency has been improved when retrieving edit areas via the query dialog.	723
Corrected QPF grids from D2D by taking into account correct grid duration.	747
Only one query dialog can now be invoked at a time.	754
Fixed problem with retrieving incorrect D2D grids when the data inventory was not complete.	769
Pencil tool now works correctly on Wx data.	771
Displayed color bar values for Temperature are no longer off by 1 degree.	774
Unload option on button 3 dialog now appears for modified weather elements in spatial editor legends.	776

Invoking runGFE with only the -u switch no longer causes the user/configuration screen to be bypassed.	784
Adjusting multiple values with one drag within the temporal editor no longer causes a core dump.	794
The GFE no longer crashes after editing with the contour tool.	795
Non-existent and blank names no longer occur within edit area groups that are automatically generated.	798, 799
User is now able to see the currently selected color when using the popup menu over map legends to change the graphic color of the map.	803
Busy cursor no longer remains on after bringing up Edit Action dialog and pressing button 3 over the spatial editor at nearly the same time.	804
Fixed problem with receiving no output from ifpIMAGE when hostname and port were not specified by the user.	805
The position of the Edit Action window no longer drifts up and to the left with subsequent invocations of that window.	807
Fixed problem with the ifpServer being unable to find existing databases when being restarted.	808
GFE no longer crashes when opening or closing the Set Value dialog for Wind.	819
GFE no longer crashes when populating grids of a weather element that has been added to the server from localConfig.py, but doesn't exist in the model databases.	820
A situation in which extraneous locks would remain within a weather element has been corrected.	824
Keyboard shortcuts now work with NUMLOCK on or off.	825
Keyboard focus is now returned to the main GFE window after dialogs are dismissed.	828
Can now save and retrieve a selection time range whose name contains a slash (/).	834
Can now delete MYConfig configuration file.	835
An error resulting from the grid information dialog has been corrected.	836
When changing site IDs on the server, maps now regenerate automatically for the new site.	TRACKING # 316

Certain files were removed from the compiled Python library so that server overrides could be effective.	839
Documentation has been improved describing the use of the pencil tool on Wx data.	840
A weather element removed from the localConfig file no longer continues to appear in the GFE.	846
Wx labels in the spatial editor no longer get partially removed when using the pencil tool.	852
When starting the GFE, the terminal window no longer displays the message "import site failed"	855
Multiple Set Value dialogs can no longer appear.	857
ifpIMAGE is now using polygon writes instead of polyline writes to prevent lines closing upon themselves.	861
Server now detects if any changes have been made to maps and then regenerates edit areas if necessary.	870
Deleted color curves no longer appear (incorrectly) in the Save or Delete lists within the color table editor.	872
Color indicator circle within color wheel of the color table editor no longer disappears after Undo operation.	873
ifpAG now correctly transfers the grid time during input. Prior to this fix, only the first time constraint of data would be transferred when data spanned more than one time constraint area.	892

New in This Release (since AWIPS 5.0 IFPS GFESuite)

This section describes features in the GFESuite Linux version that have changed from the official AWIPS 5.0 HP-UX GFESuite. This list, plus the above section "New In This Release (since AWIPS 5.1.1 IFPS GFESuite)", cover all changes made for GFESuite Linux. If you already have AWIPS 5.0 GFESuite HP-UX installed on your AWIPS boxes, this section, plus the above section, covers changes made since that software version.

New Feature Highlights

- A BASE/SITE/USER concept has been implemented that segregates modifications made by individual users from site-wide modifications, both of which are segregated from base definitions provided by FSL in the distribution software.
- An ifpIMAGE program has replaced the ifpGIF program, allowing more flexibility and ease of use in creating images from gridded data.
- Significant changes have been made to the structure and capabilities of smart tools, including pre- and post-processing, access to soundings and grid information, calls to other tools and scripts, procedure commands, and unit conversion.
- A color table editor has been implemented allowing the user to easily create custom color tables.

Changes to User Interface

Density of contours can now be controlled interactively by using button 3 over the Spatial Editor legend.	TRACKING # 343
Map background colors can now be changed using a button 3 popup menu over the map legend.	414
Upper level fields from D2D grids are now available for use in the GFE and with smart tools.	429
Can now toggle map visibility rather than only unloading maps.	473
A text entry field in the Set Value dialog now allows the user to enter a value by typing.	484
Added capability to change line style (patterns), and line width for the spatial editor visualizations. The user can now change the style and width for contours, bounded areas, and wind barbs/arrows. The change is accomplished through the button 3 popup menu over the Spatial Editor legends. A default can also be set in the gfeConfig.py per weather element name.	493
Font sizes can now be changed interactively.	599
Any color can now be selected for graphic colors via the color wheel.	603
Redefined button clicks on grids in the grid manager. Button 1 click makes grid editable and removes visibility of other grids in the spatial editor. Button 2 click makes grid editable, but maintains current visibility of other grids in the spatial editor.	645
Quickview button added to button bar to allow easy access to this function.	646

Splash screen has been added allowing selection of the user and configuration file for the GFE session.	
The graphic color menu now has an entry called "Choose..." which brings up a color selector.	
The interface for smart tools has been improved and a new template has been provided.	
Moved Graphic Color selection out of Display Attributes Dialog since it can be done from the legend. Moved the Display Attributes entry from the MB3 popup over the GridManager to the Spatial Editor legend.	
The toggle legends technique on the spatial editor has been changed to work like D2D. There are now two of the following entries available on the spatial editor popup depending upon the current state of the legends (MAPS, Spatial Editor Time, Weather Elements): Hide Legends, Show Map Legends, Show Weather Element Legends.	
Revised click1/click2, drag1/drag2 on the pick up value dialog. Click1 and drag1 now pick up a value. Drag2 picks up a value. Click2 toggles the zoom on the pick up value dialog.	
A color table editor is now available through the Other... button 3 popup over the grid or map background spatial editor legend. The dialog allows the user to select virtually any color.	
A new dialog to define config and ifpIMAGE files has been provided. Off the Main Menu --> GFE --> Define Config and ifpIMAGE Files... works just like Define Text Products and Define Procedures Dialogs	
Edit Area and Query Dialog: * Submit now clears query * Added "Recall Query" button to recall up to 10 past queries * Added "EditAreaGroups" entry to gfeConfig so define the initial Edit Action Groups to be selected when the Edit Area and Query Dialog appears.	
The Set Value Dialog (PickUpValue) for vector weather elements now allows direction entries either by a 2 digit direction (in 10s of degrees) or by one of 16 compass points (e.g., ENE).	
Added menu entry to set the current pickup value to all selected grids. Grids->Assign PickUp Value. This complements the previous functionality Grids->Assign Default Value.	

Added "Split Grid" to the button 3 popup on the Grid Manager. This will split the grid at the time constraint boundary nearest to the popup location.	
Added "Assign PickUp Value" to the button 3 popup on the Grid Manager. This will assign the current pickup value to the entire grid over which the popup menu was launched. The labels for "Assign PickUp Value" and "Assign Default Value" have been changed to indicate the actual value to be assigned.	

Changes to Configuration Files

serverConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/serverConfiguration.html	TRACKING #
None	
gfeConfig Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/gfeConfiguration.html	
Pencil tool area of influence is now configurable.	481
The gfe config file is now served up by the server, allowing for multiple config files.	651
DefaultColorTable_minWaveLength and DefaultColorTable_maxWaveLength have been renamed indicate left/right positioning.	665
A configuration item has been added allowing the user to specify whether the the grid manager and spatial editor should be in a horizontal or vertical relation to each other upon startup of the GFE.	707
The GFE now supports masking of the displayed domain based upon the site id. The GFE config file can now specify an edit area to be used as a mask for a site id. Spatial data will then only display inside the given mask.	
gfeConfig.py has new entries: weatherType_defaultIntensity and weatherType_defaultCoverage. These define the weather set value dialog defaults for intensity and coverage based on the weather type.	
A new entry exists in gfeConfig.py: DefaultSamples. It provides a list of named sample sets that are automatically displayed when the GFE is first started.	

Following items added to the gfe configuration: * WindArrow and WindBarb default sizes -- both overall and for a specific weather element. * WindArrow scaling, linear or logarithmic -- both overall and for a specific weather element. * Wind Sample Format - in either ddff, 8pt, 16pt, or d/f formats -- both overall and for a specific weather element.	
Fit to Data color tables are now an option in the gfe configuration file.	
OfficeDomain_expand has been changed to OfficeDomain_expandLeft, OfficeDomain_expandRight, OfficeDomain_expandTop, and OfficeDomain_expandBottom. This gives the user more flexibility.	
The TK_font and PYTHON_font have been removed from the gfe configuration file and no longer can be configured.	
Font sizes throughout the GFE can now be configured through the gfe configuration file.	
Maps.py Note: Online help can be found at /awips/GFESuite/doc/onlinehelp/mapConfig.html and localMapsConfig.html. It is recommended that you eliminate any copy you have made of Maps.py and placed in /awips/GFESuite/etc/SITE/Maps.py, and use the new localMaps.py technique.	
Functionality of createEditAreasFromMaps has been put into the server and is controllable via the Maps.py file.	618

Other Changes to Appearance and Functioning

Hour glass cursor now appears for some events where the user must wait until the GFE completes processing.	TRACKING # 233,705
Maps are now decompressed in memory to save disk space.	378
The spacing of contour labels has been improved.	419
Sample tool readout now includes underlying shadow for better readability.	447
Query dialog now contains mathematical operators.	451
Sample points can now display lat/lon values.	476
The initialization menu is more intuitive.	509
Only one initialization process runs at a time.	510

Pre- and post-processing is now supported in smart tools.	531
Performance has improved for some grid operations.	577
Color bar for Wx now contains common values via button 3 popup menu.	598
The Display Attributes dialog now displays the actual color rather than its name.	604
Different weather elements can now use the same display colors.	647
Information regarding details of the particular build of the GFE that the user is running is now written in the GFE log file at startup.	649
Information regarding details of the particular build of the server that the user is running is now written in the server log file.	650
When creating a new tool, the initial dialog selection for the "weather element to modify" now defaults to the currently active weather element.	668
In the Sample menu, the Save entry has been renamed to Save/Delete	678
Scrolling in the grid manager has been improved.	700
Valid options in the Display Attributes dialog are more intuitive.	708
Default delta values can now be set on a per weather element basis.	712
BASE, SITE, USER concepts have been added.	
The ifpImage program has replaced the ifpGIF program to allow more flexibility and easier use in creating images.	
When a new subkey is added in the Set Value dialog for Wx, it now appears with the same values as the last sub key.	
TextProducts: -- Added option of naming forecast definition simply "Definition" instead of the product name. This allows for easier copying/pasting of Text Products. -- If "displayName" is None or "None", the TextProduct will not appear in the Product Generation menu. This way sub-products that are part of combinations do not have to clutter the menu. -- Added error handling for invalid weather elements and invalid edit areas requested for sampling.	
Added "scale" type of variable to VariableList (used in Smart Tools and Smart Text Products) which displays a slider-bar for user input.	

Smart Tools can now access weather elements, including models, that are not loaded in the GFE. Note: They can access, but NOT modify unloaded weather elements.	
Smart Tools can now be declared as a class and inherit from the SmartScript class which has a library of useful methods. The system is backward-compatible so existing Smart Tools will still work.	
The Break Lock Dialog now contains the IP address or hostname of the owner of the lock.	
TextProduct enhancements: Added "autoUpperCase" to Text Product definition to make resulting text all upper case. Added "autoSentence" to Text Product definition so sentence formatting can be turned off if desired.	
In the Edit Action dialog, the Extra Tools and Extra Scripts windows have been removed, and a Utilities window added. There are no longer Edit Action Groups. Instead, the BASE, SITE, USER structure allows you to have your own set of edit actions appearing in the Edit Action Dialog.	
The "I" in the grid block of the grid manager has been changed to "P" to indicate that the grid is populated instead of initialized. The terminology of initialized has been changed to populated.	
The GFE may now be started in a displaced real-time mode, for purposes of reviewing old data. The -z switch takes the start time in the form of yyyymmdd_hhmm.	
Added Smart Tool arguments: "lat", "lon" which give the corresponding latitude and longitude values for the current point.	
Removed "S" button from Button Bar.	
Added two example Text Products for looping through a component product with Edit Areas or Time Periods.	
Added capability to handle Weather-type elements in a table. Example was added to the Table Template.	

Bug Fixes

Sample Set and Reference Set inventory change notifications no longer ignored in the GFE.	TRACKING # 102, 103
Map legends no longer disappear when toggling a map on or off.	203
Set Value dialog for Wx now displays better default values.	218
When using the Contour Tool, previously removed contours are no longer added back when a new contour is added.	251
GFE will no longer start until all maps are processed.	312
Weather Element Browser now will always display the Load and Cancel buttons, regardless of the size of the window	335
When a Wx grid contains multiple weather types, the types are now displayed in the correct order as specified in the configuration.	524
Break lock dialog will now never become so large that the operation buttons are inaccessible.	548
Break lock dialog will now successfully find all locks.	549
Time shift dialog bug fixed.	588
Invalid menu items that occurred in some situations in the temporal editor have been removed.	592
Fixed incorrect time range selection.	596
Bug in recalculating contours has been fixed.	606
Bug in Edit Action dialog has been fixed.	608
Bug when using contour tool has been fixed.	609
GFE will no longer save a tool with an invalid name.	610
GFE no longer allows two tools to have the same name.	612
Consistency Script modification dialog now shows names of independent variables.	615
Fixed bug that caused some grids far to the right to not be visible in the grid manager scrolled completely to the right	620
Replaced occurrence of the obsolete term "Reference Set" with "Edit Area" in a dialog.	621

Fixed parsing error that occurred in the Edit Area and Query dialog when the "+" symbol was being used for the union of two queries involving Wx.	622
Fixed bug that prevented user from removing all contours in the contour tool.	623
Fixed bug that caused some segments of contour lines to be missing.	624
Contour tool contours are no longer hidden under the contours of the grid display.	629
For Winds, the smooth tool now only smooths the vector components that are active according to the Vector Edit Mode.	630
Fixed problem with the Wx key needing a space before the final quote in order to be evaluated correctly.	631
The fuzz values and discrepancy values defined in gfeConfig.py are no longer being ignored.	632
Font appearance has been improved.	633
Calculations in the QPF Smart Tool have been corrected.	635
MRF time constraints have been changed from local time to GMT.	636
Slider bar time constraints have been fixed in ifpInit.	637
Corrected problem where snow was being generated in initialized grids where rain should have appeared.	638
Fixed problem where Weather Element Browser would not save a new group.	639
GFE will no longer crash when toggling topography.	640
Load button has been removed from the Volume Browser.	642
Syntax errors in gfeConfig file will now prevent the GFE from starting.	655
Invalid temporal editor pane sizes in the gfeConfig file are now automatically adjusted to a valid size.	658
Invalid animation speeds in gfeConfig file are now caught and handled.	663
Error when using the smarttool avg() function has been corrected.	666
Fixed bug where user could not toggle topography more than once.	677
When selecting "Fit to Data" in a temporal editor pane, the visuals displaying the data no longer disappear.	683

User can no longer delete or save sample sets that are write-protected.	688
User can no longer delete or save edit areas that are write-protected.	689
User can no longer delete or save color spectrums that are write-protected.	690
User can no longer delete or save tools, edit area groups, bundles, smart scripts that are write-protected.	691
Clicking on grids while in Quick View mode no longer causes a system crash.	715
A performance problem when using the Save/Delete Edit Area dialog has been fixed.	724
Define Procedure problems have been corrected.	743,744